This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

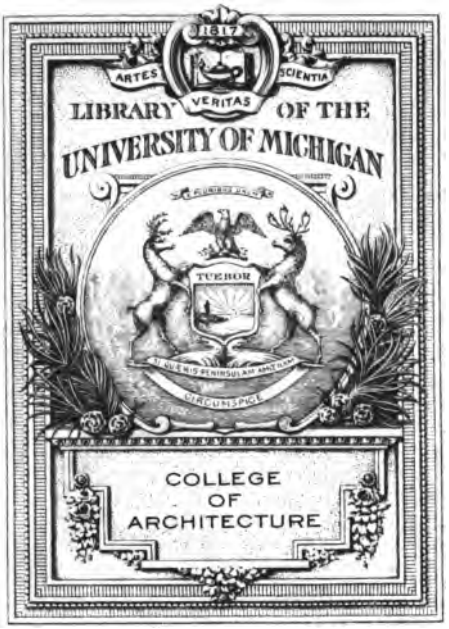
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

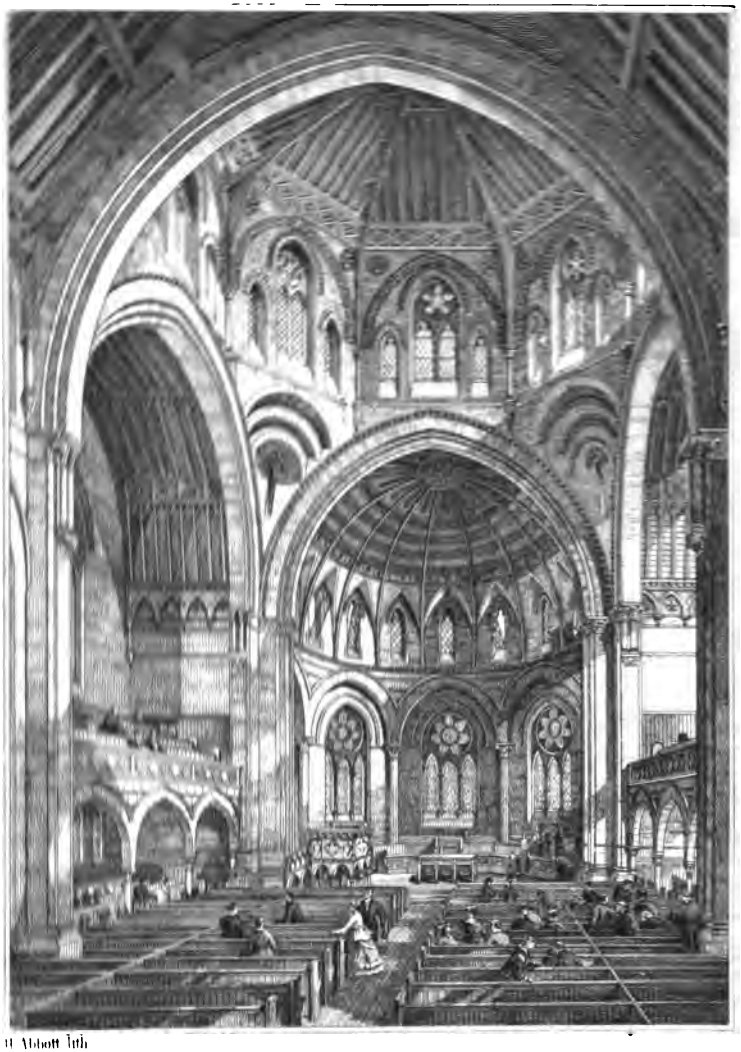
B 470264


ARTES
VERITAS
SCIENTIA
LIBRARY OF THE
UNIVERSITY OF MICHIGAN
TUEBOR
COLLEGE
OF
ARCHITECTURE

Arch. Lib.
NA
4800
.C96

CHURCH DESIGN FOR CONGREGATIONS.

W.M.



H Abbott lith

DESIGN FOR GALLERIED CHURCH.

INTERIOR VIEW.

Jas Av Whiteman & Bass London

London Smith Elder & Cº 15 Waterloo Place 1857

CHURCH DESIGN FOR CONGREGATIONS:

ITS DEVELOPMENTS AND POSSIBILITIES.

BY

JAMES CUBITT,

ARCHITECT.

"We may say, the Old never dies till this happen, Till all the soul of good that was in it have got itself transfused into the practical New."

CARLYLE: *Lectures on Heroes.*

WITH NINETEEN PLATES.

LONDON:
SMITH, ELDER AND CO., 15, WATERLOO PLACE.
1870.

Architecture
Simons
4-11-45
52332

PREFACE.

THE following remarks, part of which were first submitted, in the pages of the *Building News*, to professional readers, now address themselves to a wider circle. It is, after all, only with the intelligent concurrence of the public that architecture in these times can make any great movement. The first step towards giving more character and fitness to the design of our churches, must be a general conviction that more character and fitness are needed. Such a conviction has lately shown itself in several quarters, with the happiest results. Here and there it has joined some of the best modern art to some of the best arrangement yet adopted for modern purposes. To make this conviction more common and its results more marked, are the two ends here aimed at. Neither of them could be gained without showing plainly what the weak points of ordinary church design really are—without dwelling on the failure which one section of it makes in architecture and the other

5-14-45 MBL

in convenience. To prove these facts is the indispensable preliminary of improvement; and this consideration, it is hoped, will explain what might otherwise seem like insensibility to the real excellences of the works in question. It has, at least, been attempted to look at both varieties of them from an independent point of view: to judge them without favour or partisanship on their own merits. Such attempts, indeed, wherever they are made, usually meet with little encouragement; and the prudent course, without doubt, is to see no faults on one side, and no beauties on the other. But, at worst, their reception can only be that which a great writer once desired for himself. "I find," he says, "I have the ambition common to other reasoners—to wish, at least, that both parties may think me in the right. . . . But if that is not to be hoped for, my next wish should be that both might think me in the wrong, which I would understand as an ample justification of myself, and a sure ground to believe that I have proceeded at least with impartiality, and perhaps with truth."

Finsbury Place, August, 1870.

CONTENTS.

CHAPTER I.

THE CONVENTIONAL CHURCH TYPE.

PAGE

The Essence of this Type a Nave with Aisles—Its two chief Varieties—The Original One with thick Stone Piers, and the Modern One with thin Iron Shafts—Characteristics of the Stone Column Variety: the Shutting-out of a large Part of the Congregation from the Service; the making the Service inaudible to many who are not directly shut out by the Nave Piers—Characteristics of the Iron Column Variety: slight Construction; weak and inartistic Effect; low and awkward Shape externally—The constant Dilemma on the Conventional Church-type: either bad Architecture or bad Arrangement—Where to look for better Types, and how to use them. 1

CHAPTER II.

SUGGESTIONS FOR CHURCH ARRANGEMENT WITH COLUMNS.

Why are Columns used in Churches at all?—The Possibility of using them without causing Obstruction—Suggestions for Design: *1st. Plans with few Columns*—Nave and Aisles Plan with wide Bays—Eastern Churches with only four Columns, carrying a central Dome—Mosques carrying out the same Idea on a larger Scale—Reasons for admitting the Dome into Gothic—Substitutes for it in Wooden Roof Construction—Few-column Plans with a partial Aisle—*2nd. Plans with a large central Area*—Churches with a wide Nave, and side Aisles reduced to mere Passages—Recent Designs of this Class—Narrow-aisled Buildings with a central Dome..... 22

CHAPTER III.

SUGGESTIONS FOR CHURCH ARRANGEMENT WITHOUT COLUMNS.

PAGE

The Limits up to which Columns may be dispensed with—Suggestions for Design: 1*st. Aisleless straight-sided Plans*—Those buttressed internally; those roofed or vaulted with external Buttresses; those with Domes resting on pointed Arches (French Byzantine Churches)—Connection of a wide Nave with a moderate-sized Chancel—2*nd. Aisleless Cruciform Plans*—Other Reasons for their use besides the symbolical one—Plans with square-ended Chancel and Transepts: with Apsidal ones; oblong Plans becoming Cruciform above—Treatment of the Crossing—Lantern Towers—3*rd. Cruciform Plans with Central Space*—Use of this Space in increasing Accommodation and shortening Transepts—Plans with the Central Space square, oblong, or octagonal—4*th. Plans based on the Circle*—Simply Circular Plans "unmeaning and inconvenient"—Use of the Circle in combination with other Forms—The Circle with Recesses—The Octagon—The truncated Ellipse or Vesica 52

CHAPTER IV.

GALLERIED CHURCHES—IRON-COLUMN CHURCHES—CONCLUSION.

The general Condemnation of Galleried Churches—Good Reasons, in much modern Work, for its Condemnation—The frequency, nevertheless, of Galleries in fine ancient Buildings—How these Galleries differed from ours—Three descriptions of Gallery: the Aisle-Gallery, the Recess-Gallery, and the Balcony—The second generally the best—Design for a Church on this Principle—The Theatre Plan often advocated for preaching in—Its Advantages and Defects—Iron Column Churches—How to improve them—Design of Cast Iron—Conclusion: necessity of Toleration for new Ideas in Church Design: a vertical Type of Gothic not to be too much insisted on—Arrangements suggested for Adaptation—Cost—Style..... 75

LIST OF ILLUSTRATIONS.

I. *The Conventional Church Type.* — Plans of Walpole St. Peter's, Neath and Ryde. Sketches of ordinary aisled churches, with thick and with thin columns . . . . . *To face page* 4

II. *Plans with Few Columns.* — Plans of Sta. Maria del Mar, Barcelona: St. Antholin, Medina del Campo: St. Cross, Breslau: Treves Cathedral: South-west view of Church at Sinzig 26

III. *Plans with Few Columns.* — St. Bardias, Thessalonica (Plan and interior view): Sta. Sophia, Trebizond (Elevation and section) 30

IV. *Plans with Few Columns.*—Plans of Church at Ephesus: Sta. Sophia, Constantinople: Mosque at Adrianople: Interior view of Mosque of Ahmed, Constantinople 34

V. *Plans with Few Columns.*—Plans of Mosque of Suleiman, Constantinople: Mosque of Ahmed: Church at Daphni: Chapel at Lâon: Baths at Kacham, Persia: Interior view of Sta. Sophia, Constantinople 34

VI. *Plans with Few Columns.* — Sta. Irene, Constantinople (Plan and interior view): Church at Vourcano (Plan and interior view): Plan of St. Basil, Kieff. 36

VII. *Plans with Few Columns.* — Plans of St. Catherine, Pisa: Notre Dame du Taur, Toulouse: Church at Roueiha, Syria (with section): Exterior view of St. Marie du Mont 44

VIII. *Plans with Large Central Area.*—Church of the Dominicans, Ghent (Plan and interior view): Plans of Chapel at Rheims: Cordeliers, Toulouse: former Church at Constantinople (as restored by Hubsch). 46

IX. *Plans with large Central Area.*—St. Stephen's, Walbrook (Plan and interior view): Plan of Sta. Fosca, Torcello: view of Church at Dighour . *To face page* 50

X. *Aisleless Plans buttressed internally.*—St. Cecile, Alby (Plan and section): Gerona Cathedral (Plan and view): Ste. Trinité, Angers (Plan) 54

XI. *Aisleless straight-sided Plans.*—Church of Thaur (Plan and view): St. Étienne, Perigueux (Plan and view): San Saturnino, Pamplona (Plan) 56

XII. *Aisleless straight-sided Plans.*—Plans of Churches at Cahors and Peaussac: Interior view of Church at Brassac: Section of St. Étienne, Perigueux . . 58

XIII. *Cruciform (Aisleless) Plans.*—Church of the Apostles, Cologne (Plan and exterior view of east end): Plans of Church at Simorre: Modern Chapel at Troyes: St. Nazarus, Milan 62

XIV. *Cruciform (Aisleless) Plans.*—Plans of Angers Cathedral: Church at Souillac: Ani Cathedral: St. Tiburce: Interior view of Church at Simorre . 64

XV. *Cruciform (Aisleless) Plans with central Space.*—Sta. Maria delle Grazie, Milan (Plan and exterior view of east end): Plans of Florence Cathedral: Mosque of Hassan, Cairo 68

XVI. *Plans (without Columns) based on the Circle.*—Plans of St. George, Thessalonica: Chapel of Ste. Croix, Montmajor: Hall in Baths of Agrippa: Design for Trinity Church, Edinburgh: View of Bazaar at Ispahan 70

XVII. *Plans (without Columns) based on the Circle.*—St. Gereon, Cologne (Plan and view): Plans of Karlshofer Church, Prague: Church at Lâon: Cathedral of Bozrah, Syria 74

XVIII. Design for galleried Church (Plans). Plan of ordinary galleried Church: Plan of Church on the Theatre System: Interior View of ordinary galleried Church. 84

XIX. Frontispiece: Design for galleried Church (Interior view) . . . . . *Title-page.*

To prevent repetition, it may be useful to give the following list of works from which plans and views have been taken. The titles of German books are translated :—

Archives de la Commission de Monuments Historiques.
Annales Archæologiques.
BOISSERÉE : *Architectural Monuments of the Lower Rhine.*
BRITTON and PUGIN : *Public Buildings of London.*
CALLIAT : *Encyclopédie d'Architecture.*
CHAPUY et RAMÉE : *Le Moyen Age Monumental.*
COSTE : *Architecture Arabe.*
COSTE : *Monumens Modernes de la Perse.*
DARTEIN : *Architecture Lombarde.*
DE CAUMONT : *Abecedaire.*
DE VOGÜE : *Syrie Centrale.*
DE VERNEILH : *L'Architecture Byzantine en France.*
FLEURY : *Edifices de Pise.*
FORSTER : *Monuments of German Architecture.*
FOSSATI : *Aya Sofia, Constantinople.*
FERGUSSON : *History of Architecture.*
GAILHABAUD'S *Architecture.*
GWILT'S *Encyclopædia.*
GUHL and CASPAR : *Atlas of Plates to* KUGLER'S *History of Art.*
HÜBSCH : *Early Christian Churches.*
ISABELLE : *Parallèle des Salles Rondes.*
KUGLER : *History of Architecture.*
KING : *Study-book of Mediæval Architecture.*
LIND : *Monuments of the Middle Ages in the Austrian Empire.*
LENOIR : *Architecture Monastique.*
LUBKE : *History of Architecture.*
LE-DUC, V. : *Dictionnaire Raisonné de l'Architecture Française.*
MONCEL : *Athènes Monumentale et Pittoresque.*
PETIT, Rev. J. L. : *Architectural Studies in France.*
RICKERT : *Remarkable Buildings in the History of Art.*
RUNGE : *Brick Architecture of Italy.*
REVOIL : *Architecture Romane du Midi de la France.*
SALZENBERG : *Christian Monuments of Constantinople.*
STREET : *Gothic Architecture in Spain.*
TEXIER : *Description de l'Arménie.*
TEXIER and PULLAN : *Byzantine Architecture.*

CHURCH DESIGN FOR CONGREGATIONS.

CHAPTER I.

THE CONVENTIONAL CHURCH TYPE.

The Essence of this Type a Nave with Aisles—Its two chief Varieties —The Original One with thick Stone Piers, and the Modern One with thin Iron Shafts — Characteristics of the Stone Column Variety: the Shutting-out of a large Part of the Congregation from the Service; the Making the Service inaudible to many who are not directly shut out by the Nave Piers—Characteristics of the Iron Column Variety: Slight Construction; weak and inartistic Effect; low and awkward Shape externally—The constant Dilemma on the Conventional Church-type: either bad Architecture or bad Arrangement—Where to look for better Types, and how to use them.

HE art of building satisfactory churches for modern congregations is one that yet remains to be perfected. It is one, in fact, that has only begun to be studied seriously within the last few years. Until very recently, nearly all our religious architecture, whether Protestant or Catholic, Anglican or Nonconformist, has been a development or a repetition of one single idea. Its style may have varied, its artistic merit may have been great or small; but its arrangement, with few

exceptions, has all been based on the same type. The essence of this type is a nave with aisles ; in other words, a space for the congregation, divided into parallel avenues by rows of columns. In some recent cases, these columns have dwindled down to very slender dimensions ; but normally they may be considered as massive stone piers, numbering four or more in a row, and so placed as to make each side aisle at least half as wide as the central one.

How this form of church arose out of the Roman basilica, how it was perfected in the Middle Ages, and how it came to be retained when the ritual of the Middle Ages was abandoned, concerns the archæologist rather than the architect. For him the question is, " How far does it meet the real wants of the day?" Beyond doubt it has been imitated almost universally ; but is this imitation wise? Suppose for once that habit and custom were out of the question. Suppose it had to be decided for the first time what arrangement would best harmonize with Protestant worship in its existing forms. The first condition would surely be that the whole congregation should see and hear the service ; the next, that they should do so in a building worthy of its destination. The ideal church could never be too elevated in its visible expression, but it could never also be too perfectly fitted for its destined use. Does our conventional church type, then, satisfy these two conditions? Is it one which would commend itself to minds unbiassed by habit or precedent? For an answer, examine its results. Look at the churches built in conformity to it, at whatever time, and by whatever party. Numbers of

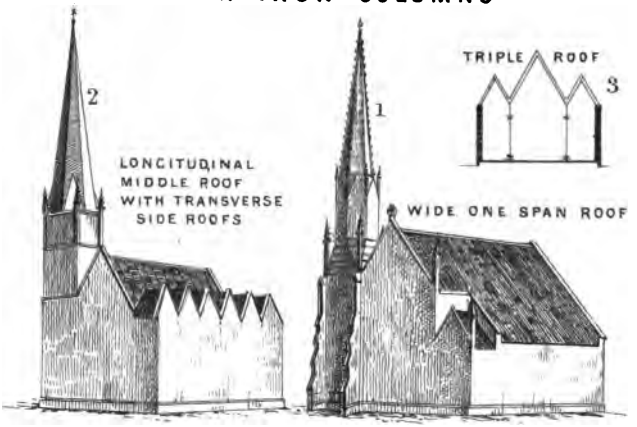
them possess excellent architecture, joined to an arrangement which shuts out a multitude of the congregation from the service. Numbers more—a late development of the type—have a fair amount of practical utility, gained by the sacrifice of all that is noble and impressive. Take the ordinary Anglican church, with its thick stone columns: there is architecture with imperfect convenience. Take the average Nonconformist church, with its thin iron ones; there is convenience with imperfect architecture. But where shall we find the two united? Where is there an arrangement which a competent judgment can approve, clothed in a form which a cultivated taste can admire? The truth is, that on this type the two things are antagonistic. No one designing at first hand a hall in which a few hundred people should listen to a speaker, would put two rows of columns down the middle of it. And when custom, and the popular notion that "it would not be a church without," insist on the insertion of these columns, a regard for the practical uses of the building insists, on the other hand, that they shall be as small as possible. Unfortunately, they cannot be much reduced with impunity. The muscle and sinew of the building—its life and force and expression—grow feebler as its main supports grow less; and as the nave piers waste away, the whole structure falls into a sort of architectural consumption. There is a perpetual struggle, on this system, between the necessities of design, which call for large columns, and the necessities of arrangement, which demand small ones; and the best examples of it only show a com-

promise where neither are satisfied. This will be clearly seen on examining more closely the two chief forms in which the prevailing type of church appears: the original one with stone columns, and the lately developed one with iron shafts.

A. *The nave and aisles plan with thick columns.*— Suppose, first of all, that this arrangement is carried out with stone nave piers. Then, as in most of our old churches, and in very many of our new ones, these piers shut out a large part of the congregation from the service. The three ground-plans in Plate I. fairly exhibit this type. Of these three, the first (Walpole St. Peter's) is an ancient one, and the other two (Neath and Ryde) are very recent. The shaded part of them represents the area from which it is impossible, because of the columns, to see the pulpit; and if the lines were drawn from the communion-table, the obscured area would be still greater.

Nearly half the side aisles are thus rendered useless, perhaps worse than useless, since they are filled with seats from which people can neither see nor hear. It is quite true that a "magnificent profusion of space" may be made a great element in architectural effect. A church is not to be condemned because every square foot of it is not available for congregational use. But where it is attempted to make every part so available, every part should be free from obstruction. There is no principle which binds the designer to a niggardly economy of area any more than of height. But there is a plain principle

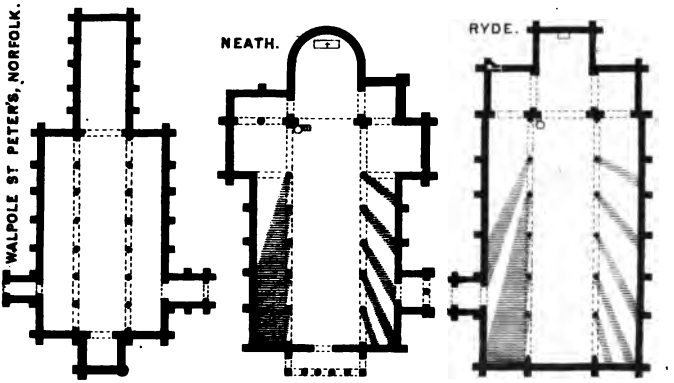
WITH IRON COLUMNS



WITH STONE COLUMNS

AISLED CHURCH. WITH CLERESTORY.

AISLED CHURCH. WITHOUT CLERESTORY.



THE CONVENTIONAL CHURCH TYPE.

Lithe Whitemore & Bass, London.

London. Smith, Elder & C° 15 Waterloo Place. 1870.

which should bind him, if he is providing for a service in which the people are intelligently to join, not to arrange his church so that the service becomes invisible or inaudible to any of them.* And the extent to which, on the conventional arrangement, it does become so, may be seen at a glance where the sittings are free and the congregation large. Every one, for instance, who has attended the services in the nave of Westminster Abbey must have noticed the way in which the side aisles are avoided as long as a single seat can be obtained elsewhere. If he has himself been unfortunate enough to be placed in them, he will be convinced, too, that this avoidance is not without good cause. The obstruction in this case, indeed, as in most cathedrals and abbey churches, is worse in proportion to the size than in a smaller building. It increases rapidly with the number of the piers. A comparison of the space obscured by the nave piers in a number of English examples, taking, for the sake of comparison, the pulpit as the point which ought to be visible, makes this fact quite clear. Where, as, for instance, at St. James the Less, Garden Street, there are only three bays in length, the area thus obscured is only some 14 per cent. of the

* It is open, indeed, to any one to contend that it matters nothing whether the service be audible or not: that the one purpose of a church is to provide a place for worship, and to surround this worship with everything which can awaken and sustain elevated feeling: that the age of preaching has gone by, and that the book has superseded the sermon. On such a theory as this, the present arrangement may be perfectly defensible; but it is to those who hold a different one, that the considerations here brought forward are addressed.

whole area of the nave. Where, as at St. Andrew's, Hillingdon, there are five bays, it rises (in spite of the smallness of the piers) to 25 per cent. With six bays, and a more massive style of construction, about 32 per cent. of the nave is obscured in the new cathedral of St. Finn Barr, Cork; while in some of our old cathedrals, such as Lichfield, not less than 42 per cent. of the nave would thus be rendered useless. On the average, however, it may be assumed without exaggeration that nearly one-fourth of the nave space in large modern churches (of the stone column variety) is thus blocked up by the columns. Making all allowance for passages to the seats, it will generally be found that, in a congregation of 600 persons, at least 100 are thus placed where they can neither see nor hear the greater part of the service. Worse cases might be pointed out; but this seems a fair computation. Now, with this result, which any one can verify for himself, is it not yielding too much to habit and custom when we perpetuate this variety of the conventional church type? Does it argue a high standard of architectural skill, that, in trying to accommodate 600 people, we should be content to put 100 or more in places quite unfit for their use?

This interference of the nave columns with the primary object of the building is not, however, the only fault of the prevailing system. The extreme length of plan to which it often leads is quite as fatal to the purposes to be fulfilled. The voice becomes inaudible in the middle aisle through distance, just as much as in the side aisles

through the intervention of the columns. The same thing also happens when, as is not unfrequent, deep transepts are added. Of minor features, again, much might be said, though the general disposition of parts is what it is chiefly proposed to consider. But in them, as in nearly everything besides, the prevailing type shows plainly that it is not the product of existing circumstances. Its whole character tells of a ritual in which the people had small part, not of a worship which they were intelligently to join. The nave was, in fact, an outer court for the laity. What was really held essential was what went on within —the work of the priests about the altar—and whether this was more or less visible to the congregation mattered little. Such was the theory on which our ordinary church arrangement was developed, and wherever it is not the theory of modern times, there the resulting arrangement is not that for a modern church. We talk of reviving mediæval art principles, but in this type, at any rate, we are only copying the merest externals of mediæval form. For it is surely not *this* that our thirteenth century predecessors would have designed, had they been working with our ends in view. They surrounded their own form of worship with an architecture as characteristic as it is grand—they would have devised an equally characteristic one for ours. There is no reason why the one any more than the other should be cramped and dwarfed by narrow utilitarian prejudices. There is no reason why we, any more than they, should suppress one half of our nature, and connect our religion with all that is hard and mean

and unlovely. But there is every reason why our churches should be fitted for their destined use. It is not enough that they *can* be used, in spite of their inconvenience, for Protestant worship: they should be its visible counterpart and reflection. The great charm of good architecture everywhere lies in this,—that it expresses the aims and feelings of its founders; that, centuries after they have passed away, it is still alive with their life, and every stone of it tells in a universal language what they loved, what they believed, and what they sought. Their hopes and passions, thus made half immortal, have outlived their possessors, and affect us still. We know the men who were so far from us in time by what they did: their work was the reflex of themselves. Can any one say that modern religious architecture is in like manner the reflex of modern religious thought? and can any one who thinks Protestantism worth living for say why it should be unable to produce churches distinctively its own?

B. *The nave and aisles plan with thin columns.*—And now turn to the quarter where, more than anywhere else, it *has* been attempted to produce a church for modern uses, and observe the second variety of the conventional type. Here the faults of its more ordinary form have been strongly felt. Here the practice of putting people by the hundred where they can neither see nor hear the service has been confessed to be the absurdity it is. What, then, is the expedient by which this absurdity is avoided? In an overwhelming majority of instances it is simply a

reduction in the size of the nave piers. This may seem at first an easy way out of the difficulty. It needs no great skill or invention. It is to retain the conventional plan, merely putting small columns instead of large ones; but, unfortunately, this obvious expedient does not go very far. Used in moderation, it adds but little to convenience; pushed to an extreme, it ruins art and construction together. As to the extent of the space obscured, it makes no proportionate difference whether the nave piers are 3 feet or only 1 foot in diameter. Looking towards the pulpit, from one aisle at least, the larger columns would seem to overlap each other, while several of the smaller ones will still apparently touch. But as to the architecture, it makes the highest difference. Thin piers lead to thin arches, to a thin clerestory, or none, and, for the sake of lightness, to a thin roof. The strength, character, and directness of ancient work give place to a tame unmeaning prettiness. Instead of a piece of good solid construction, the outgrowth of the real wants of the day, we have a lifeless copy of an unsuitable model. So far, indeed, has this process gone, that to certain classes the very name of Gothic has come to suggest flimsiness and slightness. That style which embodied the most thorough constructive science the world has ever seen, and which used it to obtain the most lasting results, has been parodied till some persons think it only fit for a masquerading dress to what Americans call "fancy buildings." Such an idea, it is true, finds no support from the practice of the recognized heads of the Gothic school. A more vital difference can

scarcely exist than that between the true and false Gothic of the present period; between that which uses the Pointed style as the best mode of building known, and that which uses it merely as the best mode of making bad building presentable. These are the highest and the lowest points which modern architecture has touched, and, for various reasons, this lowest point is often to be noted in the thin column type of church.

It is hardly worth saying much of the churches whose columns are only moderately thin, since they have all the faults, though in a somewhat less degree, of those with thick columns. And they become a little less inconvenient only by becoming a great deal less architectural. A large part of the congregation is still shut out, even by columns of this reduced size. On some fresh type of plan, moderate-sized piers of granite, or even clustered shafts of iron, might perhaps be used, so as to unite good architecture with perfect convenience; but on the ordinary nave and aisle system this is impossible. The alternatives here are "thick, or moderately thick piers and bad placing of the congregation," or "thin piers and bad architecture." Unless the nave piers are large enough to cause considerable obstruction, a design on this type is sure to be a starved and degenerate one of its sort. And below this size they are never found in any churches remarkable for artistic merit. In all such examples, if they follow the conventional plan, convenience is invariably sacrificed to strength and beauty. It seems natural to infer that our ablest designers feel them on this plan to be incompatible.

If they did not, they would hardly make a constant rule of sacrificing the former to the latter. But the fact is not left to be thus inferred. A multitude of cases exist where the columns *have* actually been reduced enough to let nearly the whole congregation see and hear the service, and these show what the effect of such a reduction really is. These are, of course, the cases where iron columns have taken the place of the nave piers. Where, indeed, these iron shafts still carry arches of brick or stone, as at the Woolwich Chapel, by Sir Digby Wyatt, at St. Mark's, Notting Hill, Trinity Church, Huntingdon, and many other places, they are necessarily thick enough to cause considerable obstruction. In such cases there is often a compromise uniting the weak points of both varieties of the ordinary church type. The columns are too thin to allow of due strength in the wall they carry, or to be well proportioned in themselves, and yet they are not thin enough to avoid much inconvenience to the congregation. The architecture is usually poor, while the arrangement is still anything but perfect. And where, as, for instance, at the Congregational Church, Burnley, the shafts are coupled to give greater thickness in the arches, though the architectural objection is lessened, the other remains. But more often the columns do not carry arches at all. Their superstructure is of wood, and their diameter only a few inches. Here, then, we have the nave and aisles plan in its last stage of attenuation. Convenience has been reached, or nearly so; but what sort of architecture remains? We see an elaborate timber roof (or perhaps

worse, a heavy load of plaster beams and cornices) poised on thin iron props, which seem to tremble under the weight. We see the whole structure depending on shafts so slender that they would not even stand upright by themselves; of a material which the least outbreak of fire will ruin, and which a short period of neglect will decay. A roof thus balanced on straggling supports, almost small enough to be overlooked, is a hopeless subject for design. Strength and solidity, visible as well as actual, are the first requisites of high artistic character: and if these could not be obtained, without practical inconvenience, on a columnar system, it would be far better to adopt a system without columns. There is something absurd in first fixing on a type whose very essence lies in its amply-proportioned nave piers,—and then thinning these nave piers almost down to nothing because they are so much in the way. Admirable churches might be built without any columns at all, but hardly with columns (unless clustered) only a few inches thick. Even in those ancient buildings, such as Stone Church, Kent, where grace and lightness have been carried furthest, the nave piers have at least ten times the bulk of these thin iron ones. The latter have been sometimes defended on the plea that Gothic admits of light and elegant proportions. Very true: but these bear the same ratio to an elegant Gothic column which a skeleton does to an elegant human figure. Of course iron construction does not necessarily involve these taper shafts. On some fresh system of planning, iron, though never equal to stone, might become a very useful material, especially where a

large number of people have to be accommodated at very little cost.* But to be successful, it must be used in sufficient mass: and to use it so without causing much inconvenience, it is first necessary to modify the conventional church plan.

Returning, however, to these thin column churches, it remains to inquire what sort of form they present on the outside. In other words, what kinds of roofing are possible with such small shafts? The roof with a stone or brick clerestory may be omitted from the list, for, though it is sometimes found with iron columns, such columns must then be thick enough to cause considerable obstruction, and the case therefore belongs to the first variety of the usual church type. A wooden clerestory has now and then been used with thin shafts, and but for its want of permanence this might be one of the least objectionable forms of the class. But the most usual arrangements are these three: either the single span roof from wall to wall, over all three aisles; or the longitudinal roof over the middle aisle, with short transverse roofs over each bay of the side aisles; or the triple longitudinal roof. Of these, the first (shown in block in Fig. 1. PLATE I.) is much the commonest. It occurs very rarely in fair examples of the ordinary stone column church—as, for instance, at St. Mary's, Stoke Newington, and somewhat oftener in old village churches of very unpretending exterior. But in these iron column buildings it has

* For some further remarks on cast-iron in church-design, see page 88.

till lately been almost universal; and undoubtedly of all the modes of roofing found in large Gothic structures it is the least compatible with high architectural effect. It gives a front nearly all gable, and a side nearly all roof. Used, as it almost invariably is, with low walls and a wide plan, it leads to proportions as unpleasing as can well be imagined. Where, indeed, necessity required it, buildings of a similarly low and wide form were doubtless at times erected in the best Gothic periods. In some few cases their exterior may have even been deliberately sacrificed to the interior, the former being devoted to plainness or even downright ugliness to gain additional grandeur in the latter. But it can hardly be said that it was ever attempted to make a Gothic exterior of these proportions imposing or ornamental. While its treatment is perfectly artless it may escape criticism; but the moment decoration is applied to it, at that moment it begins to be tainted with vulgarity. The mere fact of drawing attention by ornament to so uncouth a shape argues of itself a certain want of perception. A wide, low building, overwhelmed by an enormous roof, is not convertible into a satisfactory church by any amount of tracery and carving. Before any sort of decoration can be attempted, the first necessity is, plainly, to remove the shapelessness of this crowning feature, and to give the whole design some beauty of outline—some play of light and shade. This, however, involves a radical change. To give grace or nobleness to a building of the shape in question would be an impossibility. A lofty-looking front to it, indeed, is easily

contrived. A tower is put over the lobby or staircase at one corner, and a turret or a short piece of imitation aisle (see Fig. 1) over that at the other. Half the width being thus got rid of, the middle of the gable runs up as tall and narrow as can be wished. But this arrangement is only a few feet in depth. The barn-like mass still stands behind it, as clumsy as ever. A few buttresses may adorn its sides, and a few dormer windows may diversify its roof; but when all is done, two more discordant objects than the building and its front could hardly be brought together. The one is heavy, wide, unbroken, and horizontal; the other is all gables, pinnacles, and vertical lines. The one is the embodiment of rigid utilitarianism: the other almost runs riot in its search for the picturesque. Two such incongruous parts can never make one perfect whole. It takes something more than "a front" to make a church, and something more than architectural adjuncts to produce architecture. The first necessity is nobleness of general form: ornament is only wasted on a structure with the proportions of a shed. What opportunity then for such form does the next mode of roofing on our list present? This, it will be remembered, is the longitudinal roof over the middle aisle, with short transverse roofs over each bay of the side aisles (PLATE I., Fig. 2). It has lately come into common use in these iron-column churches, and in fact has been repeated often enough to have made a far better idea wearisome. The great objection to it,—apart from its being worked to death in this way,—is its crowd of side gablets. Their fantastic and saw-like outline destroys all

breadth and repose. Their showy and obtrusive effect—only capable of being harmonized with the most elaborate architecture—is absurdly incongruous with the square and box-like mass which they usually surmount. They form a very poor substitute for the main horizontal member of the building—the eaves cornice or parapet,—whose contrast with the vertical ones is almost as essential in Gothic as in Italian. A gablet here and there may be useful. But the more gablets there are, the less telling they become. Power is lost, not gained, by multiplying salient points. Where every word would be emphatic, there is no emphasis at all. If every part of a picture be in high light, nothing but flatness can result. And when a building has many equally conspicuous features, it becomes even weaker and tamer than if it had none. No doubt a roofing-system something like that in question may be found in some German churches, by no means the best of their class. But there the bays are usually large, and the gables few, and only put where they are necessary. At Herford, for instance, each gable is nearly 30 feet wide; in other words, this church has two gables where most modern ones of the class have five. Used thus, with reserve and moderation, the system might sometimes be useful. With no more than two or three gablets on a side, an occasional specimen of it would not be amiss: but on the ordinary church of some six bays long, even the huge barn roof before noticed would be a more merciful infliction. There now remains only the system of three longitudinal roofs, one to each aisle (PLATE I., Fig. 3). This is

not very uncommon in ancient work, though more so in modern buildings of the sort now under review. Probably the inconvenience of its long gutters, so liable to be choked by snow or leaves, has operated against its employment. This fault might perhaps be lessened by a little ingenuity, and the triple roof system might then prove the best of the three. This, however, is not saying much. It is rarely indeed that any of these three systems can produce a result comparable even to the ordinary clerestoried exterior. All of them have, in addition to their other faults, a comparatively low and square outline; a special objection in town churches, which urgently demand a lofty exterior to keep them from being dwarfed and spoiled by surrounding houses. And of course none of them do anything to remove the internal failings of the thin column church. Whatever expedients may be tried, anything worth calling internal architecture is out of the question, while the main columns are so small as to be half invisible.

The nave and aisles plan, the conventional type from which our churches are only of late beginning to deviate, has thus been noticed in both its varieties. The result may be stated thus. When its columns are *thick*, or moderately thick, it inevitably shuts out a multitude of people from the service. Supposing it to be five or more bays in length, at least a sixth, and sometimes a fourth of the congregation are placed out of sight both of the pulpit and of the communion table. It admits of excellent architecture, but it is inseparable from gross inconvenience. When, on the other hand, its columns are *thin*, the inconvenience

is removed, but the architecture is ruined. The system has been forced into compliance with modern demands, but it has been killed in the process. The mediæval arrangement has been retained, but the only thing to be gained by retaining it,—architectural excellence—has vanished. The type as it remains is but a shadow of itself,—a mediæval church in the last stage of starvation. To architectural readers some apology may be needed for the space which has been occupied in proving a fact so clear. And to some other readers a similar apology may be due for that taken up in showing that ordinary nave columns cause an unreasonable amount of obstruction. Both these points seem sufficiently evident, but if they are so, why does not the natural result follow? If it be really understood that on the ordinary nave and aisles plan we are bound down either to bad arrangement or to bad architecture, why is that plan still so common? Perhaps here, as elsewhere, each party sees the weak points of the other much more clearly than its own. The class which adheres to the stone column variety says to the opposite one, "Your architecture is poor; you have ornamented your buildings before you properly designed and proportioned them;" and the other retorts, "Your arrangement is imperfect: in your churches hundreds of people can neither see nor hear." And an unprejudiced looker-on finds it very hard to deny the truth of either statement.

What, then, is to be done—to build thick column churches unfitted for their purpose, or thin column ones unworthy of their destination? Neither; but to step out

of the enchanted circle of habit and precedent in which we go round and round and get no further,—to break through the "tyranny of custom," and to find a type on which architecture and practical utility are not incompatible. Such a type does not present itself in the ordinary nave and aisles plan, whether its nave piers are thick or thin. But it may be hopefully sought for in either of these two ways—by designing our churches without columns at all, or by designing them with substantial columns placed where they will cause no obstruction. The former system is already adopted in small buildings, and there are some signs of its future employment on a larger scale. It allows great variety of form. Its plans may be oblong, cruciform, circular, or polygonal; or, still better, a fresh combination of these different elements. On the latter system, the columns may be few in number and far apart, or they may be placed so near the side walls as to obscure, not the seats, but only the passages leading to them. We may thus have either the wide nave with narrow side aisles, or the ordinary nave with very wide bays, or both together. We may plan a grand open space before the pulpit and communion table,—surely a natural arrangement for a Protestant church,—and we shall find ample scope for architecture in its external and internal treatment. It was for Catholic times to perfect the long, many-columned avenues of nave and aisles; it remains for us to develop the equally magnificent capabilities of the central dome and lantern tower. "Any one," says the

late Rev. J. L. Petit, "who believes that our services were intended to be performed in the sight and hearing of the whole congregation, will admit that the great object of the church architect should be the attainment of a large unbroken area in front of the minister, in whatever part of the service he is engaged. Our adherence to the models least suitable to this purpose, and our rejection of those which are admirably adapted to it, is to me a strong proof that we are studying the Gothic in a spirit of servile imitation, instead of treating it as a style to be refined upon and improved." There *are* ancient buildings, then, better suited to our purposes than those which we have so long persisted in copying. The conventional church type has not been retained because nothing better exists. Promising variations on it and altogether fresh systems are both to be met with. They come, indeed, from widely different sources: from the earliest edifices of Eastern Christendom; from the mosques, which were developments and imitations of them; from the aisleless cathedrals of France and Spain,—the domical churches of the former country, and the cruciform and polygonal ones which are scattered here and there all over Europe. And when found, they are seldom fit for exact repetition. They supply us, not with copies to be rigidly adhered to, but with ideas to be worked out in new forms. In all such examples, something more than mechanical imitation is wanted; and where in the study of ancient models is it not? In all of them there is an essential idea to be seized, and a great many non-essential adjuncts to be got rid of. In

not a few a change of style is inevitable, but there is nothing unprecedented in translating ideas from one style into another. An instance will occur to every one in that gem of English Gothic, the octagon of Ely Cathedral, and the classic versions of it at St. Paul's, and St. Stephen's, Walbrook. But it is possible to take a far wider range than this. Does any one ask how it is likely that a mosque can suggest arrangements for a church? A mosque at Algiers, according to Ravoisie's drawings, is all but identical in plan with Wren's church of St. Stephen's. It has the same number of aisles, the same number of columns, the same great central square brought into an octagon and crowned with a dome; in fact, the same leading features altogether, worked out in pointed construction, with a delicacy of ornament to which the Italian design can make no pretence. Suppose that Ely and its derivatives had never existed, would this idea have been any the less admirable because it originated in an African mosque instead of an English cathedral? It is, of course, only general ideas that can be gained from the study of works so foreign in character as this. But general ideas are precisely what are wanted in church arrangement. Style and details we have already; what is needed is the basis for their use, the groundwork to which they are to be applied. The purpose now in view is to suggest a few such ideas, to see how far they have been already adopted in recent practice, and to point out, if possible, how some of them might be carried still further with great advantage.

CHAPTER II.

SUGGESTIONS FOR CHURCH ARRANGEMENT WITH COLUMNS.

Why are Columns used in Churches at all?—The Possibility of using them without causing Obstruction — Suggestions for Design: 1*st. Plans with few Columns*—Nave and Aisles Plan with wide Bays — Eastern Churches with only four Columns, carrying a central Dome—Mosques carrying out the same Idea on a larger Scale—Reasons for admitting the Dome into Gothic—Substitutes for it in Wooden Roof Construction—Few-column Plans with a partial Aisle—2*nd. Plans with a large central Area*—Churches with a wide Nave, and side Aisles reduced to mere Passages—Recent Designs of this Class—Narrow-aisled Buildings with a central Dome.

IF it be admitted that the arrangement of the columns in our ordinary aisled churches is an inconvenient one, what better modes of arranging them can be discovered? Before attempting to answer this question, it is worth asking what reasons there are for the use of columns in churches at all. There is evidently no mechanical necessity for them, in the absence of a domed or vaulted roof. Our bridges and railway-stations have far wider spans than any church. And, doubtless, many churches now built with columns might well have done without them: they would have been less inconvenient and

less diminutive in scale. But in wide buildings, columns serve two important ends: they improve the proportions and facilitate the construction. The former they do by dividing a broad and low nave into several narrower avenues, each of them relatively lofty; the latter they effect by shortening the bearings of the arches, which then demand both less strength in themselves and less material in their abutments than if their span were greater. They are useful, too, in many points of design,—such, for instance, as in supporting clerestories, or analogous features for lighting and ventilation. But perhaps, on the whole, their highest value in church arrangement is that of improving proportion, in giving dignity and nobleness of expression to a structure not actually very lofty. Strength and durability may be attainable—though it is doubtful how far they have really been attained—in those enormous spans which are the pride of modern engineering; but beauty of proportion, whether internal or external, it is hardly within the power of imagination to connect with them.

How to do without columns (in buildings below a certain size) is the subject of the next section. The question now is how to use them with least inconvenience. And here there are two distinct principles on which we may act. We may get rid of most of the obstruction by using very few columns; or we may do away with it altogether by moving the columns out of the way of the seats towards the sides of the building. Which of these principles is the best to adopt in any given case may depend on the proposed expense, the nature of the site, and

many other circumstances. But on either of them, or on a combination of both, a church may be designed infinitely more convenient than our common ones, and at least equally architectural. The piers, instead of spoiling, as usual, about one-sixth of the sittings, may be so managed as to spoil scarcely any. This once done, the motive for thinning them down is gone. The construction may be as substantial as it ought; and yet this substantial construction will not have the gross fault of shutting out hundreds of people from the service. We may see, at last, a real nineteenth century church, in a masculine and monumental style; not a lifeless copy of our old ones, but a living descendant of them, inheriting their excellences, and escaping what, for us, are their defects.

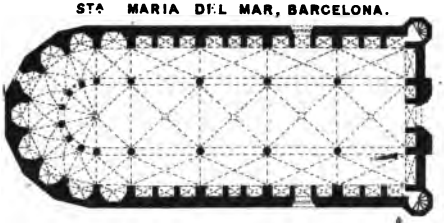
1. *Plans with few columns.*—One obvious mode of lessening the obstruction caused by columns, is to reduce their number. There are several ways of doing this. They may be set further apart, so that instead of four or five in each nave arcade, there may be only two or three. The whole building, again, may be made shorter in proportion to its width, so that even if the columns are kept no farther apart than before, fewer of them will be wanted. And lastly, the general form of the plan, instead of being a simple rectangle, may be something more complex, so as to require, not a whole range of columns, but only a single one here and there. The first of these varieties, the plan with "wide bays," is a very natural modification of our ordinary type. If each arch of its nave arcades, instead

of being 10 feet or 12 feet in span, were increased to 20 feet or 30 feet, there would, of course, be fewer arches needed, and therefore fewer piers to shut out the view of the pulpit or communion table. But, in doing this, two special difficulties occur. First, the wider the arches are the more they rise, and, unless there is some further alteration, the higher the whole building must consequently be. Secondly, to enlarge the bays tends to lessen the apparent size of the building generally, or, in technical language, to destroy its "scale." A church divided into five bays of length will usually look larger in every way than an equal-sized one divided into only three. These two difficulties have helped to counteract the advantages of wide spacing, and in recent churches it is rarer than might have been anticipated. St. Peter and St. Paul's, Cork, designed by Mr. E. W. Pugin, has the nave piers some 22 feet* from centre to centre. At All Saints', Margaret Street, they are two or three feet closer, and at St. James the Less, Garden Street, their distance is about 18 feet. But in most of our modern churches, as of our ancient ones, the bays seem to average from 12 feet to 15 feet each. Our cathedrals were of course set out on a rather larger scale, though some of them, such as Ely and Lichfield, have the nave piers barely 17 feet from centre to centre. Of twelve abbey churches in Mr. Sharpe's *Parallels*, Tintern has the widest bay (18 feet 3 inches), and Netley the narrowest (14 feet 3 inches).

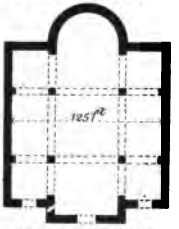
* These dimensions, many of which are scaled from plans, do not pretend to absolute exactness.

English Gothic, as it has often been remarked, delighted in multiplicity and smallness of parts. Wide bay churches must therefore be sought rather on the continent than here; and it may be useful to examine a few of them, and to see how the two difficulties of extreme height and want of scale are sometimes met. Extreme height, indeed, the Mediæval builders often seem to have thought an advantage rather than an objection. At Antwerp Cathedral, for instance, (with 29 feet bays in the middle aisle), there is a clerestory of immense depth above the arches. At Magdeburg, with 40 feet bays, there is likewise a very deep clerestory, though the nave arches are of low proportion. Here their vast size is shown by putting two bays of vaulting, and two three-light clerestory windows over each. At St. Cross, Breslau, (PLATE II.), there are 30 feet bays in the nave, and 15 feet ones in the side aisles. Two aisle windows thus face each arch, and there is an external buttress opposite to its centre. In Spain, Mr. Street's labours have introduced us to a series of churches designed on a system of surprising magnitude. At San Benito, Valladolid, the bays are 31 feet each; at the Cathedral of San Salvador, Avila, 34 feet; at the Collegiata, Manresa, 32 feet, and at Siguenza Cathedral, 39 feet. At the new (15th century) Cathedral of Salamanca they are 33 feet, two two-light windows, with a circle over them, standing above each arch. At Barcelona Cathedral, with 30 feet bays, and comparatively small piers, there is a low triforium arcade, and a range of rose windows enclosed by the wall rib of the vault to serve as clerestory. But another church at Barcelona, that of Sta. Maria del Mar,

Stª MARIA DEL MAR, BARCELONA.



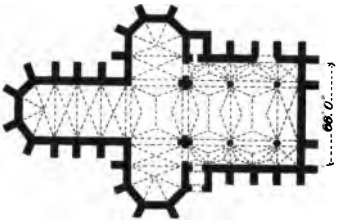
TREVES CATHEDRAL.



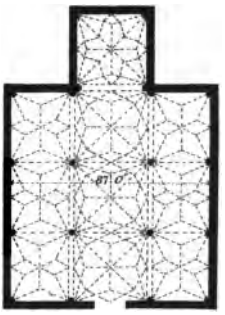
(ORIGINAL PLAN)

CHURCH AT SINZIG, SOUTH-WEST VIEW.

St CROSS, BRESLAU.



St ANTHOLIN



PLANS WITH FEW COLUMNS.

Lith. Whiteman & Bass London

London, Smith, Elder & Cº 15 Waterloo Place. 1870.

(PLATE II.), goes far beyond this, and has its nave piers no less than 45 feet from centre to centre. Compare this with some even of our cathedrals—such as Ely, Hereford, or Lichfield. Three bays in this Spanish church are equal to eight in these English ones—and the former would have but two columns where the latter have seven. It will hardly be questioned which principle best fulfils the requirements of a congregation—that with a crowd of columns or that with vast unobstructing arches. The difficulties in applying the latter cannot be overlooked—but it does not seem impossible to reduce them. At Sta. Maria del Mar, the height is kept down by a peculiar form of clerestory. The wall-ribs and the nave arches both spring with different radii from the same capitals, and the former just rise high enough to allow of small windows above the summits of the latter.

Compared with any of our own churches, that just described seems incomparably large in its parts. Yet examples of still wider bays exist in Italy. Florence Cathedral (PLATE XV.) has its piers about 60 feet from centre to centre. But architecturally it shows (at least in its nave) what to avoid rather than what to imitate. It is as deficient in scale as a building can well be. There are no secondary divisions; no minor arcades or groups of windows, or double aisle compartments, to assist the eye in realising how vast each main arch is. In each 60 feet length of the aisles there is one long narrow two-light window, and one small round one in each bay of the clerestory. The result proves how important it is, if we adopt

wider bays than usual, to provide some means of displaying their width. To neglect this is not only to detract from apparent magnitude and impressiveness of the building, but to produce a straggling, bald, and uninteresting design. Whether it is to be effected by double roofing compartments as at Magdeburg, and at the Franciscan Church, Erfürt; by extra clerestory windows, as at Salamanca; by an arcaded clerestory, as in the 60 feet bays of Treves Cathedral; by gallery arcades, as in many Byzantine churches,* including St. Mark's, Venice; or by numberless small windows to the walls† and domes, as in the same examples, may depend on special circumstances in each case. But once accomplished, either by these or any other means, the chief objection to a wide bay plan would be removed; and without approaching the dimensions to be found in many Spanish or Italian churches, we could dispense with a large proportion of those nave piers which now produce so great an obstruction to seeing and hearing the service.

So far, we have seen how to keep down the number of the nave piers by simply spacing them farther apart in each row, thus employing what are technically called "wide bays." But there is another way of gaining the

* See Sta. Irene (PLATE VI.), and Sta. Sophia (PLATE V.)

† As in Roueiha (PLATE VII.), which belongs to this group with wide bays. It is one of the interesting churches of the fifth or sixth century, discovered not long ago, by Count de Vogüe, in Central Syria. In spite of its wide spacing, its height is moderate, the arches being semicircular, and the piers low. With some reduction in their size, it would make a not very inconvenient building for modern purposes.

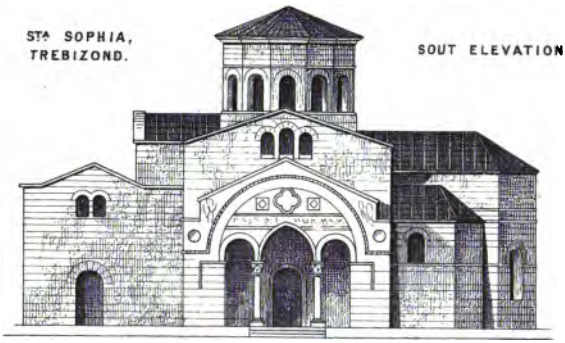
same end; by making the whole building broader than usual in proportion to its length. Very often this expedient is combined with the previous one. The plan is shortened, and the bays are at the same time enlarged; and in this way a very considerable area may be roofed with no more than four columns. Mediæval examples of this sort are not at all uncommon. Such, for instance, is the church of St. Antholin, at Medina del Campo* (PLATE II.) Its nave is nearly square, and measures about 90 feet each way. It is three bays long, and is divided as usual into three aisles of almost equal width. The vaulting springs directly from the capitals of the nave piers, and the lighting is from windows high up in the outer walls. "It is," says Mr. Street, "an undoubted success, in spite of the extremely late character of all its detail." The four columns in such a building as this cause very little obstruction compared with the far more numerous ones of our ordinary churches; but by a little further change in their position even this small obstruction may be diminished. This is to be done by moving them nearer to the two ends of the building, and making the middle bay the widest of the three. Such an arrangement may be traced in what seems to have been the original plan of Treves Cathedral (PLATE II.) The interior here was about 125 feet square, and the great arches had a span of nearly 60 feet. This was a Roman work; but most of the existing buildings of this type are of Byzantine character, and have a dome over the space enclosed by the four

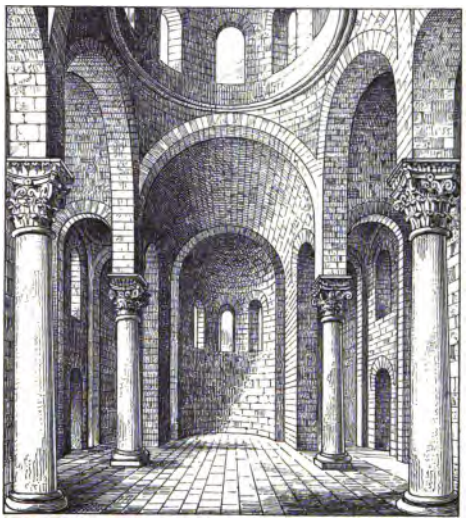
* From STREET.

widest arches. St. Bardias, Thessalonica* (PLATE III.), is a fair example of the smaller ones. They contain four columns, often of classic proportions. These are generally so placed that each is as near to one end as to the side of what may be termed the nave—in other words, so as to leave a square central space with a narrow aisle all around it. Arches spring from column to column, and from each column to the walls, the middle arches being the widest. On the central square thus formed a circular dome is placed by means of pendentives. It is commonly raised on a tambour or cylinder, pierced for the admission of light—this feature possessing at St. Bardias a range of eight round-headed windows. The middle bays of the side aisles, like the portions of the central one east and west of the dome, are covered with barrel vaults following the curve of the principal arches, but in the present case slightly recessed behind them. The square spaces at each corner of the side aisles are here covered with small domes, and the apse of the chancel or *bema* finishes, as usual, with a semi-dome. In addition to the central light, there are circular-headed windows of various sizes in the walls. Over the *narthex*, or west porch, is, as frequently happens, an end gallery.

This plan of church—and still more some developments of it to be hereafter referred to—seems in several respects worthy of imitation. The position of the columns is nearly as unobjectionable as can be devised—the small part of the aisle obscured by each of them might generally be so

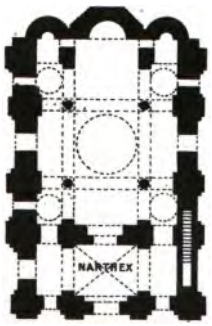
* From TEXIER and PULLAN.

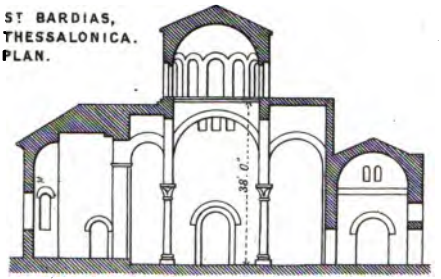




ST BARDIAS, THESSALONICA.

STA SOPHIA, TREBIZOND.
LONGITUDINAL SECTION.





PLANS WITH FEW COLUMNS.

Litho Whiteman & Bass. London.

London, Smith, Elder & Co. 15 Waterloo Place. 1870.

contrived as to form an open space leading to a doorway or be otherwise turned to account. At worst, it is so small that no great loss would arise from leaving it without seats, and, as Mr. Denison has remarked, unnecessary area is as defensible as unnecessary height, and often contributes as much to effect. With the present desire for accommodating in every case the largest possible number of people, it is rarely that an architect has the opportunity of acting on such a principle; and if seats are to be placed in every spot that will possibly admit of them, his aim must be to do away, if possible, with all obstructions to sight. But such a very moderate sacrifice of space as the arrangement now in question might require is usually quite attainable, and, this granted, the system would have very little fault as far as relates to the convenience of the congregation. Artistically, its weakest points seem to be want of length, and too great resemblance between the principal and lateral views of the nave. These failings, however, might be removed without losing its advantages. We are always being told that Gothic is the most flexible style ever invented, that it is adapted to all classes of work and every form of construction. Here, then, is an opportunity for proving the truth of this statement by working out such a plan as this in a Gothic form. It is hardly to be denied, however it may be regretted, that the most artistically successful buildings of the revival have been somewhat close reproductions of ancient Gothic churches. The flexibility and universal adaptation of the style, however true they may be, have hitherto been rather matters of faith

than of experience. It would strengthen the cause of their advocates, which, after all, is on the whole the cause of architectural life and progress, to show the possibility not only of repeating what their favourite style has done in the past, but of making it conquer and take possession of what is best on alien territory. For, of course, an Oriental building like the one in question is not fit to be transplanted bodily to English shores. It not only admits but imperatively requires a large amount of modification. It needs transposing into a different key to make it harmonise with our national tastes, not less than to fit it to our climate and modes of construction. The task would, perhaps, be difficult, but the leading idea seems good enough to repay the trouble.

The church of Sta. Sophia at Trebizond, of which a longitudinal section and elevation* are given in PLATE III., differs but little from that of St. Bardias, at least internally. Its dimensions are likewise small, being about 69 feet by 33 feet within. It has a western narthex, and also an outer one, as well as two large porches on the side—features of this kind often forming a very important adjunct to a Byzantine church. In a hot climate such porches or cloisters are valuable as a means of excluding heat, apart from more direct uses. The special intention of the narthex, however, was to provide a place, in the early times of Christianity, for assemblages distinct from worship. At Sta. Sophia the arches supporting the dome rest on four white marble columns, and spring from a

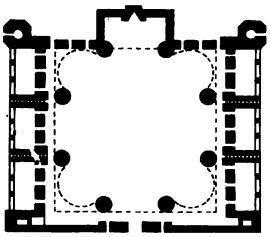
* From TEXIER and PULLAN.

point nearly 7 feet above the capitals. The western bay of the arcade is considerably wider than the eastern one, and the corners of the side aisles are vaulted over. Externally the difference between this church and St. Bardias is considerable. In the latter all the walls are carried up to a uniform level, above which no roofs appear but those of the domes. The present building, on the contrary, is treated pretty much as a Romanesque one of similar form might be, and has something of that picturesqueness for which many examples in this group are remarkable. Most of them agree in having the cruciform shape of the upper plan displayed outwardly, the front and two side arms of the cross each finishing with a gable, and the dome standing at their intersection. But the various ways of roofing the remaining spaces, and of enclosing the dome, still produce much variety. In certain cases the western bay of the side aisles is covered by a lean-to of very low pitch, starting from the eaves of the lateral arm of the cross, and ending with a horizontal eaves-cornice along the front elevation. Elsewhere a small gable on each side takes the place of this lean-to, and its roof abuts against the side wall of the western arm. At the little church of Dighour, in Armenia (PLATE IX.), another arrangement is met with. Below the gabled roof of the central part of the nave, as it may conveniently be called, is a short piece of perpendicular wall, resembling that of a very low clerestory, and from this the roof falls again like that of an ordinary aisled church. Dighour is remarkable, too, for displaying the square base of the dome externally, as

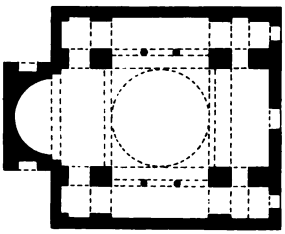
well as the tower which contains the dome itself. These Eastern dome towers have very frequently a hemispherical covering fitted on to an octagonal plan, the sides of the octagon being continued up so as to cut the hemisphere and produce a range of semicircular heads. But the most satisfactory designs are generally those which, like the present one, adhere to straight lines in preference to curves; and among the best are those like some at Athens, in which the octagon, surrounded by a good cornice, is itself surmounted by another octagon of smaller diameter, having a straight roof of low pitch.

We now come to a group of few-column buildings closely related to those just described, but immensely larger in size. The most celebrated of these, Sta. Sophia, Constantinople (PLATES IV. and V.), has considerable analogy with the small four-column churches of the type of St. Bardias. Its vastly increased dimensions, however, its unbroken nave of 108 feet wide and more than 200 long, necessitate the substitution of four enormous piers for the columns, and a number of shafts are further added to carry the galleries and the walling which fills in the side arches under the dome. But the chief distinction of Sta. Sophia lies in having half-domes instead of barrel vaults in its eastern and western bays—a characteristic preserved in most of the later buildings which took it as a model. In the Mosque of Ahmed, Constantinople* (PLATES IV. and V.), these half-domes are applied to the lateral as well as the principal avenue, and the piers

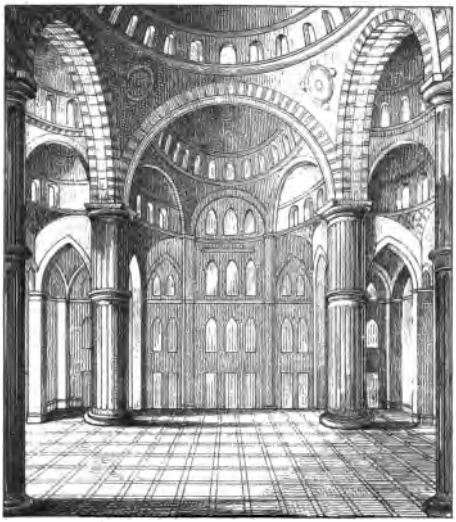
* From FERGUSSON, and *Tableau de l'Empire Othoman.*



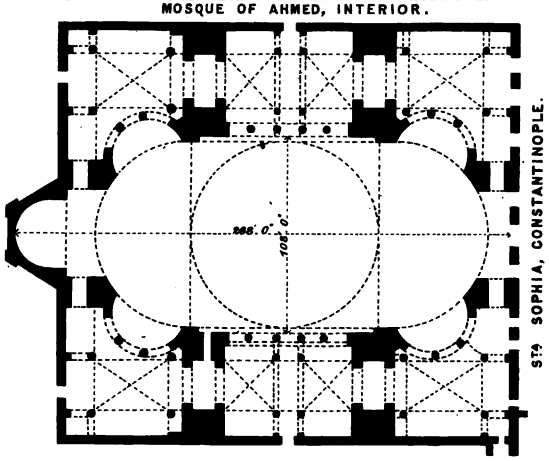
MOSQUE AT ADRIANOPLE.



CHURCH AT EPHESUS.



MOSQUE OF AHMED, INTERIOR.



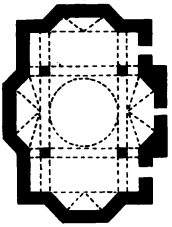
STª SOPHIA, CONSTANTINOPLE.

PLANS WITH FEW COLUMNS.

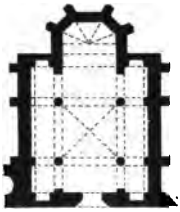
Lith. Whiteman & Bass London

London. Smith, Elder & Cº. 15 Waterloo Place. 1870.

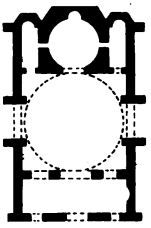
KACHAM, PERSIA.



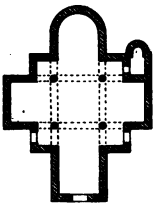
CHAPEL AT LAON.



DAPHNI.

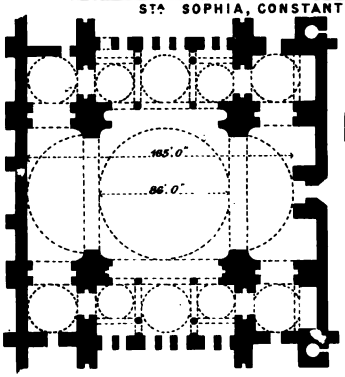


St PHILIP, SYDENHAM.

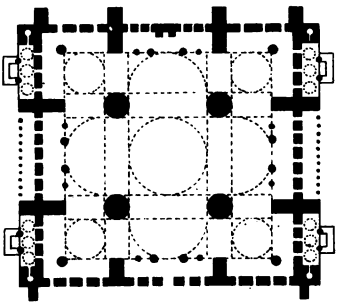


STA SOPHIA, CONSTANTINOPLE. INTERIOR.

MOSQUE OF SULEIMAN.



MOSQUE OF AHMED.



PLANS WITH FEW COLUMNS.

Lith. Whiteman & Bass, London

London. Smith, Elder & Co. 15 Waterloo Place. 1870.

are again restored to the form of fluted columns. Considerable ingenuity is here shown in arching over from these columns to the wall, to obtain a support for the various portions of the vault, and this last is far more complex than might be expected in a ceiling resting on only four internal supports. This complexity was doubtless introduced to meet the great artistic want of such works as these; to give scale and apparent magnitude; to point out the unusual size of the main divisions by the number of subordinate parts in each. In the Mosque of Suleiman* (PLATE V.) the half-domes are confined to the principal axis, an arrangement architecturally preferable to the last. The piers are so placed as nearly to exclude the corner spaces from the general interior, and practically to make the building very similar to a cruciform one. In developing this idea, however, it would be easy to reduce the size of the piers by making them of granite, or by lightening the weight they carry, and so to increase considerably the area available for the congregation. The same thing may be said of the group of churches of which the now ruined one at Ephesus† (PLATE V.) is a type. These had the central dome carried as usual on four large arches, which were continued as barrel vaults over each arm of the cross; but the side openings were filled, as at Sta. Sophia, by ranges of shafts supporting a gallery. At Daphni, near Athens,‡ each side of the central space has three arches instead of one,

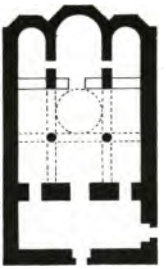
* From FERGUSSON. † From LENOIR.
‡ From HUBSCH.

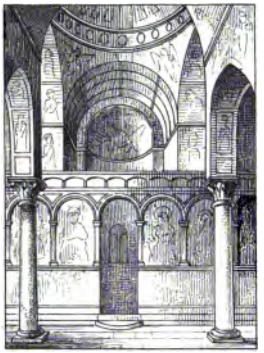
and the superstructure is arched over into an octagon, on which the circular dome is fitted by means of pendentives. The modern Persian building at Kacham* has apsidal ends and sides covered by half-domes, the central dome being pointed in section, and carried by pointed arches. The chapel at Laon is of ordinary Gothic character, and noticeable only for a plan almost identical with those of the smaller Byzantine churches. Lastly, the original design for the little modern Gothic church of St. Philip, Sydenham (by Mr. Nash) (PLATE V.), shows an application of this four-column arrangement to a cruciform building.

There are, however, a few Byzantine churches to be found with less even than four columns. The chief of these (*see* PLATE VI.) is Sta. Irene at Constantinople.† It consists of a central space about 50 feet wide and 130 feet long, terminated eastward by a semicircular apse. A single pier on each side divides it into three avenues. The side aisles are covered each by two transverse arches or barrel vaults, and the centre one by two great domes. The eastern dome is the chief, being carried higher than the other, and being surrounded at its base by numerous circular-headed lights. On the ground floor, a range of square shafts set slightly back from the face of the piers serves to support a gallery; but on the upper level shown in the plan the church appears as it is—a two-column one. In front of the building is a narthex, opening inwards by an arcade of three arches, and terminated at each end by a staircase leading up to the side galleries. The latter may

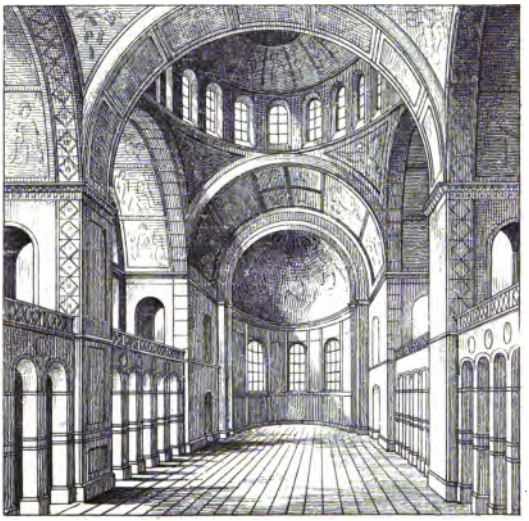
* From COSTE. † From HUBSCH.

CHURCH OF VOURCANO.
PLAN AND VIEW.

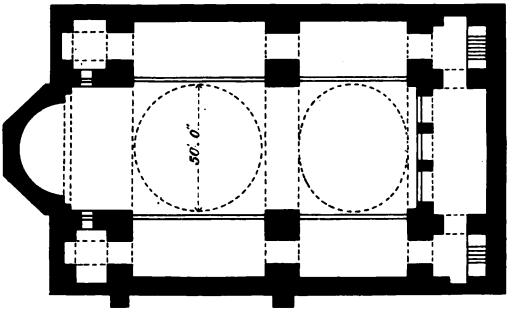




ST BASIL,
KIEFF.



STA IRENE, CONSTANTINOPLE. PLAN AND VIEW.



PLANS WITH FEW COLUMNS.

Lith. Whiteman & Bass London

London. Smith, Elder & Cº 15 Waterloo Place. 1870.

UNIV. OF MICH.

be further noticed in connection with galleries generally. They are, of course, permanent structures of stone or marble, like the rest of the interior, and not mere "scaffoldings," as Mr. Hope has termed their modern representatives. Looking at the design generally, the circumstance of its having only two piers is not that which gives it most claim to consideration; for these piers are so placed as to shut out a considerable area from a view of the eastern part of the church. The actual arrangement of plan is, therefore, not likely to be repeated, but the system adopted has considerable possibilities of development. In modern Gothic practice, the attempt to diminish obstacles to sight has too often diminished in the same ratio the strength of the general construction. The gain in convenience has produced a loss in permanence, in dignity, in the highest elements of effect. So at least it has happened in the crowd of buildings where such a gain has been sought by reducing the diameter of the nave columns. This usually leads to a reduction in the weight they carry: to a slighter roof, a thinner clerestory wall, and a less substantial way of building altogether. The value of such examples as the present is that they show how to avoid obstructions and yet to retain a masculine and monumental style. Instead of merely lessening inconveniences at a lamentable sacrifice of strength, they show how to remove them almost entirely with an actual increase in the main elements of artistic power. They adopt, in short, a precisely opposite method to the ordinary one. Instead of having a great many small columns, they

have a few large ones; and it is quite possible to place the latter so as to be less in the way than the former. This once done, the architecture may be as massive as can be wished. The constant motive for paring everything down to the slenderest dimensions has been removed, and a building is again possible which may compare for permanence with the works of the Middle Ages.

In describing the advantages of such arrangements as these, there is no intention of advocating anything so absurd as a repetition in England of Byzantine detail. If these advantages can be connected with traditional Gothic forms, so much the better. But surely the pressing need is not so much that our architecture should be traditional as that it should be honest and good. If it meet the wants of the time, and reflect its highest feelings, its origin can hardly be a matter of vital importance. The architectural patchwork, indeed, known as eclecticism—the collection of beauties from every style in the hope of producing a compound one superior to them all—has naturally proved a failure. But this is a very different thing from admitting new structural ideas on the ground of use and necessity. Our mediæval ancestors were not too proud to borrow when reasons of this kind existed, and we need hardly be ashamed to follow them. The very keynote of their system was sounded in the East before it was taken up on European shores. The pointed arch, it is generally admitted, was an importation from abroad; but it was imported, not through mere caprice, but to supply an urgent need. It necessitated, as the introduction of foreign

materials may be expected to necessitate, a recasting of the system into which it was admitted—a general modification to restore the harmony which it at first destroyed. Here, of course, lies the difficulty — in assimilating the new and the old. The new feature on which the advantages of the Byzantine system mainly depend, is evidently the dome. It admits of much wider spans and much lower proportions than the ordinary vault. Sta. Irene is far from being the largest church of its kind, yet few vaulted buildings can show a nave equally wide. Mr. Fergusson's assertion that "it is almost as hard to build a dome that will fall as a vault that will stand" sounds startling, but a comparison of Eastern and Western architecture shows that it is not without foundation. The fact, too, that a domed interior does not require, on artistic grounds, anything like extravagant height, is certainly another point in its favour. Remembering that extreme height, even when it is attainable, is fatal to acoustic excellence, this merit seems scarcely less than the previous one. It may, perhaps, be thought idle to examine the relative value of doming and vaulting when experience shows the latter to be practically almost out of the question. The former would, however, probably prove a far less costly affair, especially in some cheap material like tiles, or the hollow pottery used at St. Vital.

The amount of change which might result from the admission of such a feature into Gothic practice is of course very uncertain. Its tendency, however, would doubtless be to increase breadth of effect, to restore attention to masses

instead of edges, to gradated lights and shadows instead of lines. The wall surface would again come into importance, and instead of bar-tracery and reedy mouldings we might have mosaics, bas-reliefs, and flat carving. It does not follow by any means, as the early domical churches of France fully prove, that the pointed arch should be renounced. Even the dome itself might be made a many-sided polygon, with groin-ribs at the angles, and thus effect a compromise with its new adjuncts. But if there is a chance, by admitting it in any form, of restoring in our best churches a permanent and scientific mode of covering, it is surely worth sacrificing a few prejudices to do so. Such an acquisition would put fresh reality and purpose into architecture. Planning would once more be a work of skill and ingenuity—the solution of a practical problem with stringent conditions. External design, too, would become more truthful; the features which there is now a temptation to distribute according to mere fancy would then have a reason and a necessity for their position. It is remarkable how much excellence is developed, so to speak, inevitably, in arranging and constructing any system of geometrical roofing. This, however, would be merely an incidental benefit. The main reason for the admission of the dome is that it allows of good architecture with few obstructions to sight; that it naturally leads to large unbroken areas, and to a form of building suited beyond most others for Protestant worship. To admit the dome for the sake of its beauty is what has repeatedly been urged; to admit it for the sake of its practical advantages

is a suggestion that may perhaps have additional weight. In those cases where it might prove too costly, a substitute might perhaps be made with laminated ribs or trusses, converging from all sides to the centre. Such a roof—which seems to be the equivalent of the dome in wooden construction — has the great advantage of being able to dispense with horizontal tie-beams. If the ribs are well tied together on the outside, they have little or no tendency to spread. That such a construction, like the dome itself, is new to Gothic work is scarcely an argument against it. To produce a church fitted for a congregation is itself almost a new attempt, and may be expected to require new expedients.

It is often said, especially by those who have no personal experience of an architect's difficulties, "Our early Gothic is so beautiful, so perfect and unimprovable, that it is inexcusable either to alter or to add to it." The answer is, that the motive for altering it is not affected by its beauty or its past perfection. Those, it may be, who ask for freedom in its treatment, feel these qualities quite as keenly and enthusiastically as others. But in dealing with some of the endless varieties of modern work, varieties which have no analogy with anything in existence six hundred years ago, it becomes more and more evident that the style which was not devised for them cannot be applied to them unchanged. It is easy, no doubt, to disguise them in mediæval detail, but to make them mediæval in essence and spirit is an impossibility. The contradiction between their construction and their decoration, between

their main features and their minor forms, will strike none more painfully than those who most admire the perfect harmony of ancient work. The architect must either perpetuate this hopeless incongruity, or widen and modify the style in which he works, or else leave a very large class of buildings outside the pale of architecture altogether. There may, perhaps, be something to say for the last alternative: the first can hardly be abandoned too soon; but the second is that which naturally commends itself to every one who does not quite despair of art in the future. This is probably the true reason for the innovations of late years, indefensible as they may seem to those who seldom find the necessity for experiments, whose work lies rather in perpetuating old types than in trying to create new ones, and who live, enviably enough, in a little world of their own, where the unsolved problems of the present time rarely intrude.

It seems reasonable, then, to claim some freedom of judgment in church building as well as in other matters, and to consider how far a system with wide spans and few columns might deserve to supersede the contrary one now in fashion. It may, perhaps, be necessary to disclaim once more any intention to present these Eastern examples as models for direct repetition. At a period when one style after another has successively been advocated, imitated, and rejected, it is easy to mistake the suggestion to study the advantages of any type for a proposal to copy it bodily; and if it cannot be thus copied, the question may even be asked, "Why refer to it at all?" The answer

is, it may serve as a stimulus to invention, a starting-point for progress; it is given as a germ for future design, not as a full-grown system of design in itself. And the vital point in these Eastern churches and mosques, the merit for which they deserve attention, in spite of all their superficial unfitness, is their combination of a large unbroken area with a most impressive and monumental form of building. "It has always struck me," says Mr. Burges, "that the Mahomedan mosques, with the addition of the choir, would form excellent Christian churches, more especially for the Anglican communion." In their actual state, indeed, hardly one of them has the precise arrangement best fitted for a modern congregation. But they all show, as few Gothic churches show, how such an arrangement might be attained; and how it might be attained, too, not by thinning the columns and weakening the construction, but by actually increasing that strength and durability which every step yielded to modern requirements has hitherto tended to impair.

There yet remains another and a very different mode of designing churches with few columns,—the third and last to be described. This consists in adopting a more or less irregular plan—one, for example, with aisles along a part only of its length, instead of along the whole. Of this kind is the church of St. Catherine, Pisa* (PLATE VII.), whose nave, aisleless towards the west end, is widened out beyond by substituting an arcade and a recess for part of its side wall. This system differs from that with transepts

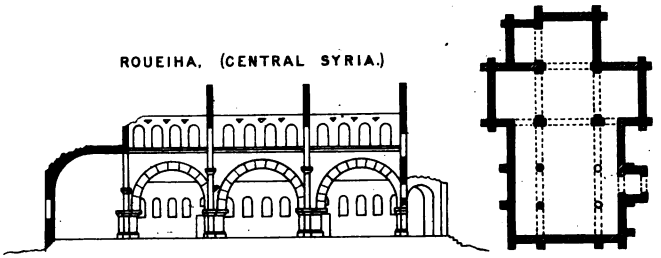
* From FLEURY.

in that the recess may be made of almost any width required, and is not limited to something less than that of the nave. It may be roofed, by the help of the arcade which fronts it, in a variety of different ways, and is altogether a more manageable and unassuming feature than the transept of an ordinary cruciform building. Notre Dame du Taur, Toulouse (PLATE VII.), would obviously have a similar arrangement, if a column were substituted for the partition wall between the side chapels. The sketch of a similar type, lightly shaded, in the same page, is that of the little church of St. George, Croydon. The column in front of the recesses here, as in several modern churches, is taken advantage of externally to roof them each with two rather small gables, instead of one of a large size. In other cases, they have been roofed with a lean-to; and in others, again, with a gabled roof parallel to that of the nave.

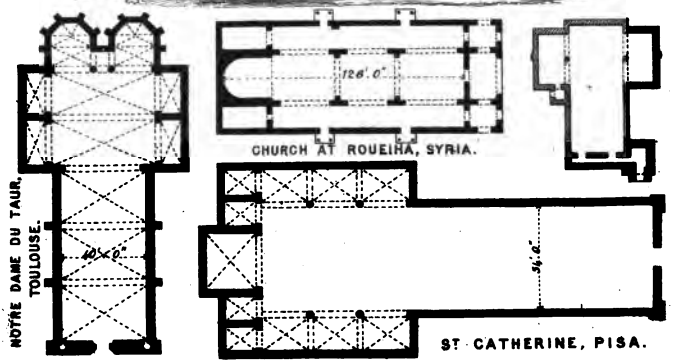
As regards external design, considerable variety is possible, even with no more than four columns. The church at Sinzig* (PLATE II.), and that of St. Marie du Mont† (PLATE VII.), have been introduced to show two of the very different, but very picturesque, compositions which may be based on this simple arrangement. Sinzig has, indeed, though the exterior gives no evidence of it, four nave piers on each side; for, west of the transept, there are four bays in each aisle, though only two in the nave. There are thus two smaller intermediate columns between the two main ones which carry the nave vaulting;

* From BOISSERÉE. † From CHAPUY.

ROUEIHA. (CENTRAL SYRIA.)



ST MARIE DU MONT.



PLANS WITH FEW COLUMNS.

Lith. Whitman & Bass, London.

London, Smith, Elder & C° 15 Waterloo Place. 1870.

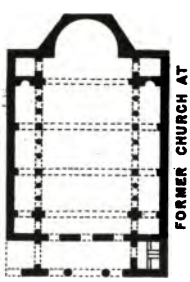
UNIV. OF MICH.

but as no advantage is taken externally of their existence, the building may fairly be classed for this purpose among four-column churches. The plan of a modern church shown at the right-hand upper corner of PLATE VII. does not differ greatly from this, and is adapted for a central tower at the crossing of the nave and transepts. St. Marie du Mont has such a tower, apparently carried entirely by the four detached piers.

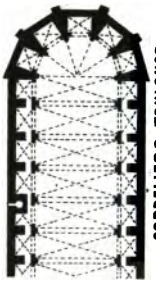
2. *Plans with Large Central Area.*—The last section was intended to show how the obstruction caused by columns may be diminished by lessening their number. The present one is meant to explain how the same end may be gained by altering their position. Suppose, then, first of all, the building to be a simple oblong, with two rows of piers dividing it into central and side aisles. On the ordinary system, these piers, as has been seen, would interfere grievously with the convenience of the congregation. But by a very simple expedient, they may be so placed as not to spoil the view from a single seat. Their advantages to a great extent remain: they still improve the proportions of the church and strengthen its construction. Their faults have disappeared: they no longer destroy the fitness of the building for its intended purpose. A system which has so much to recommend it might be expected to come into frequent use: and in fact it is the one adopted in several of the best of our recent churches. This system is that of a large central area. To obtain such an area in an aisled building it is

only necessary to widen the middle aisle at the expense of the side ones. The whole of the sittings are thus placed in the space between the two ranges of nave piers. The side aisles become merely the necessary passages to the seats, which are all confined to the central space. The congregation are all within sight and hearing of the service: and the only area obscured by the nave piers is that which is unoccupied. The inconvenience is less than in even the thinnest of modern thin column plans: and yet the architecture may be as massive and substantial as can be wished. And piers put even so near the walls as this are by no means useless. Their effect on proportion, by narrowing the span, still remains considerable. If the side aisles are five feet wide, the total reduction in width will amount to some fifteen feet; quite enough to be serviceable. But the pillars are still more valuable in facilitating the construction. How they become so will appear from the view of the Dominican Church, Ghent* (PLATE VIII.) The width here is 72 feet between the walls, and 53 feet between the columns. The middle aisle has a pointed vault with transverse and diagonal surface ribs. An arch connects each column with the wall, at about half its height, and the part above is carried up as a deep internal buttress. These buttresses are united by short pointed barrel vaults, which thus cover the side aisles. External buttresses in this example there are none, though there are pinnacles and gables so designed as to throw their weight where it is most wanted. A similar system, on a smaller scale, is adopted in the arch-

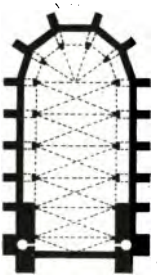
* From KING and GWILT'S *Encyclopædia.*



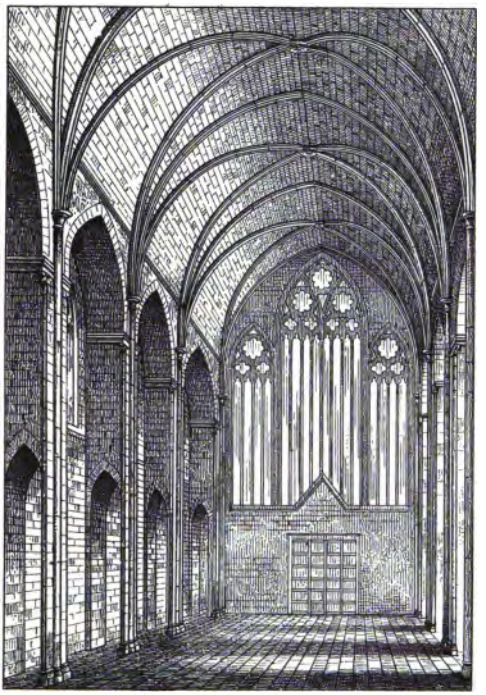
FORMER CHURCH AT CONSTANTINOPLE.



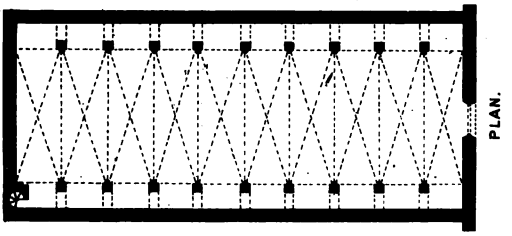
CORDELIERS, TOULOUSE. EAST END.



CHAPEL OF THE ARCHBISHOP OF RHEIMS.



CHURCH OF THE DOMINICANS, GHENT.



CHURCH OF THE DOMINICANS.

PLAN.

PLANS WITH LARGE CENTRAL AREA.

Lith. Whiteman & Bass. London.

London. Smith, Elder & Co. 15 Waterloo Place. 1870.

STATE OF MIC

bishop's chapel at Rheims.* This beautiful little thirteenth century building comprises a crypt, or lower chapel, and an upper one shown in the plan (PLATE VIII.) The internal width is only about 32 feet, and the length contains five bays besides the apse. The columns are so near to the walls as only just to leave room for a passage. On their inner face is an attached shaft, ending, at about 30 feet from the floor, in a square crochet capital which supports the ribs of the central vault. But the columns do not remain detached to this height. As at Ghent, they are joined to the wall about half-way up, by a lintel resting on corbels. There are outside buttresses as well: but the walling in the tops of the piers is evidently a great addition to them. The whole idea in fact is that of an internal flying buttress reaching from the central vault to the side walls, and having its upper part supported by the columns. External buttresses of this sort are common enough, being found even in the lower story of certain buildings in which a passage was wanted round the walls. The only difference here is that the wall is moved to the *outer* edge of the buttress, and that the passage becomes an internal one. This of course is not the only way in which the columns of a narrow-aisled church might be made useful in its construction: and even this way hardly reached perfection in either of the instances just described. Both of them have something of awkwardness in the position of the arches which join the piers to the wall. To raise these higher might necessitate a little more external buttressing, but

* From GAILHABAUD.

the improvement would be worth its cost. In a recent example of the type,—Mr. Street's church of St. Mary's, Clifton,—the buttresses are wholly external, though the space beneath them forms an aisle just as at Ghent and Rheims. They rest, in fact, on short stone lintels, running from the capitals of the nave piers to the outer walls. The nave arches are produced into a series of pointed barrel vaults, as in the former church: but unlike that, they are here surmounted by a lofty clerestory. The barrel vaults are covered outside by small gabled roofs. This variety of the system has the merit of lessening the width of the nave externally, and of keeping the side windows from being hidden within by the tops of the piers.

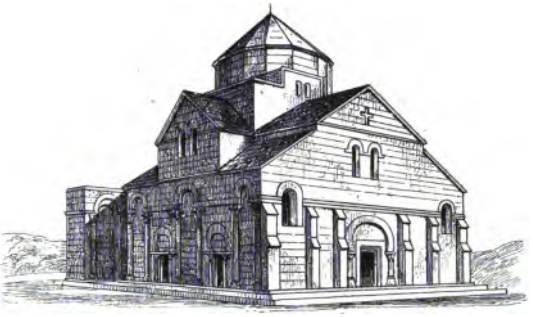
The church of the Cordeliers, Toulouse (PLATE VIII.), forms a link between the present group and that of "aisle-less plans buttressed internally." Here the spaces between the columns and buttresses (which at their base are wholly internal) are merely a number of small archways. Over the aisle or chapel between each pair of buttresses is a cross vault at about a third of their height. These vaults, at least on one side of the church, are covered by a lean-to roof, above which the buttresses appear on the outside. By a slight change the side spaces might be made available as a passage to the seats in the middle aisle—and the design might then be preferable even to that at Ghent. There is a modern chapel at Troyes (illustrated in *Calliat's Encyclopædia*) which has narrow side aisles divided from the central space by slight iron columns. But there is usually no need for reducing the size of the nave piers

thus. They are moved quite out of the way, and there is little to be gained by thinning them. In the English churches which have lately been built on this principle, and several of which are noted for artistic excellence, the columns are usually of substantial proportions. This is the case, for instance, at Mr. Brooks' churches at Bethnal Green, Haggerston, and Plaistow, and Mr. Street's at Clifton and at Oxford. At St. Andrew's, Haverstock Hill, a narrow-aisled church, by Mr. Hayward, the columns are smaller, but are also much closer together than usual. On the whole quite enough designs have been executed lately on this principle to show its value: though its advantages in combination are yet far from being exhausted.

So far, the principle of retaining a large central area for the congregation has only been considered as it affects buildings divided on the common Gothic plan into three parallel aisles. So far, the "central area" has been a simple oblong one—a mere widening of the middle avenue of the nave. But it may also be of other forms; square, circular, or octagonal. Of the last we have in this country one of the finest possible examples in the centre of Ely Cathedral. A very similar plan, though totally different in architectural treatment, is that of the little church of Sta. Fosca, Torcello * (PLATE IX.). Here the general outline is that of a cross with short arms, and the diameter of central dome is equal to their width. But instead of being supported, as in many other cases, on four arches from wall to wall across the nave and transepts, this dome rests

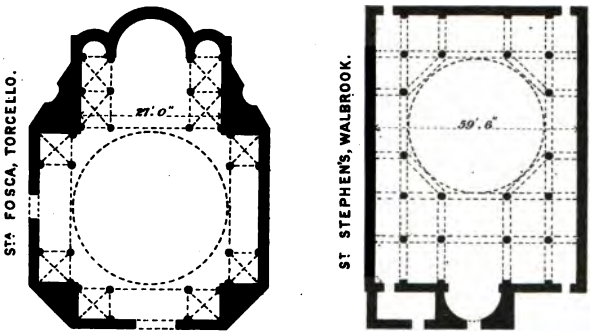
* From HUBSCH.

on twelve arches carried by eight comparatively small columns. The ingenuity shown in the plan does not appear in the construction; for the base of the dome is not even brought into an octagon, as it easily might have been. Still, Sta. Fosca, humble and unpretending as it is, is said to have suggested the designs of several important works. Among those more or less indebted to it is perhaps the well-known church of St. Stephen's, Walbrook (PLATE IX.); and, except in the spacing of the columns, the latter is scarcely, as regards the plan, an improvement. The difference, in fact, chiefly lies in substituting a plain oblong for the cruciform shape of Sta. Fosca, a difference which necessitates the narrow outer aisles and the six extra columns of St. Stephen's. The architectural beauty of the latter interior is too celebrated to need describing. Had it been less familiar, perhaps it might have been more frequently taken as a model—at least in its main and characteristic principle. In a Gothic design, indeed, the idea would need some originality in working out. What to substitute for the dome as a central feature, supposing a vault to be too costly, and how to treat this central feature externally, would be two problems requiring both skill and boldness. In a Gothic church of nearly similar plan, built some twenty years back at Highbury, the difficulty is got over, not very successfully, by putting a nearly flat wooden ceiling ever the central space. The general shape here is cruciform; the ridges of the nave and transept roofs cross on a level, and this substitute for the dome, such as it is,



CHURCH AT DIGHOUR, ARMENIA.

INTERIOR OF ST STEPHEN'S, WALBROOK.



PLANS WITH LARGE CENTRAL AREA, &c.

Lith. Wintemann & Bass. London.

London. Smith, Elder & Co. 15 Waterloo Place. 1870.

does not affect the outside at all. This expedient certainly evades the question of how to treat an external dome or lantern of such a size. But questions of this kind must become frequent and inevitable if churches are ever built on the principle of an open and unobstructed area: and much of the interest of the subject is connected with the change and growth to which they will of necessity lead.

CHAPTER III.

SUGGESTIONS FOR CHURCH ARRANGEMENT WITHOUT COLUMNS.

The Limits up to which Columns may be dispensed with—Suggestions for Design : 1*st. Aisleless straight-sided Plans*—Those Buttressed Internally ; those Roofed or Vaulted with external Buttresses ; those with Domes resting on Pointed Arches (French Byzantine Churches)—Connection of a wide Nave with a moderate-sized Chancel—2*nd. Aisleless Cruciform Plans*—Other Reasons for their use besides the Symbolical One — Plans with Square-ended Chancel and Transepts with Apsidal ones ; Oblong Plans becoming Cruciform above — Treatment of the Crossing — Lantern Towers—3*rd. Cruciform Plans with Central Space*—Use of this Space in increasing Accommodation and shortening Transepts—Plans with the Central Space Square, Oblong, or Octagonal—4*th. Plans based on the Circle*—Simply Circular Plans "unmeaning and inconvenient"—Use of the Circle in combination with other Forms—The Circle with Recesses—The Octagon—The truncated Ellipse or Vesica.

OW columns may best be used in church design is the point which has hitherto been under examination. The question now is how to do without them altogether. In works of the very largest size, this may, indeed, be impracticable. When a building gets beyond a certain width, it becomes expensive, if

architectural excellence is to be retained, to roof it in one span. For every foot added to the breadth, another foot, at least, must be added to the height of the walls, or the proportions become heavy, low, and displeasing. And again, the external effect of a very wide, unbroken roof, especially in a Gothic building, is anything but beautiful. As far as the possibilities of construction are concerned, churches might be built without columns, up to any size which, for modern purposes, could be needed; but where nobleness of proportion is an object, a limit is inevitably reached. Still, this limit is much further off than might at first appear. Though the columnless churches in this country are generally very small, some of those on the Continent can seat two or three thousand persons in their naves. And by modifying the simple oblong plan: by adding transepts to it, or by combining it with circular and polygonal forms, a large total area may be gained without extravagantly wide spans anywhere.

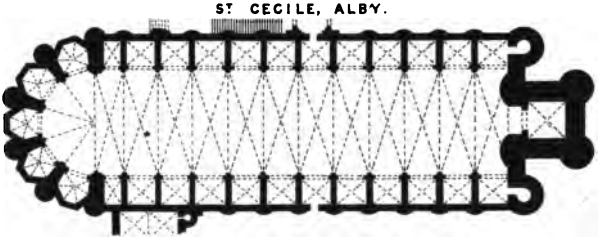
1. *Aisleless straight-sided Plans.*—The simplest of all plans without columns is, of course, the unbroken oblong or straight-sided one. The plain rectangular church, roofed in one span, is common everywhere. Most ancient specimens of it in England are small, with no sign of anything like architectural display, and with an evident admission that they were built in this form for want of means to do better. But in France and Spain a few churches of immense size have naves vaulted from wall to wall; and these show clearly the difficulties of producing a really monumental work on such a system. The Cathe-

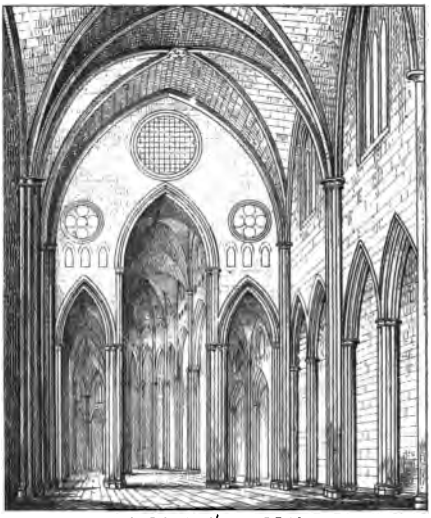
dral of Alby * and that of Gerona (PLATE X.), are fine examples of it. Alby consists of an unbroken area 290 feet long by 60 feet wide, with no aisles, no columns, and no division between nave and choir. The latter is merely shut in by a comparatively low screen, and includes about half the total length. The apex of the vault is 95 feet above the floor. The buttresses which counteract its thrust are 20 feet deep and 5 feet thick: they are wholly internal, and the spaces between them form a range of chapels which nearly surround the building. It was meant for a fortification quite as much as for a church, and every part is unusually massive. Gerona Cathedral † is on a still vaster scale. The clear width of the nave is 73 feet, and its height from the floor to the summit of the groining apparently about 128 feet. In other words, it is nearly as wide as the nave of Westminster Abbey, supposing the piers and arches taken out, and about 30 feet higher. The buttresses, like those of Alby, are 20 feet deep, and have the usual chapels in their intervals. There is, however, an important difference in their arrangement. At Alby, the side walls above the chapels are carried up over the *outer* extremity of the buttresses, which, therefore, project into the interior of the building, casting long shadows across, and almost hiding the side windows from view. This peculiar treatment, however, pertained to the fortress rather than to the church; and at Gerona the more regular and advantageous one is adopted of an

* From KING.

† From STREET.

St CECILE, ALBY.

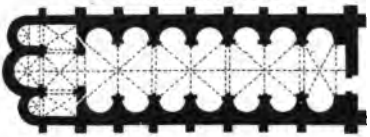




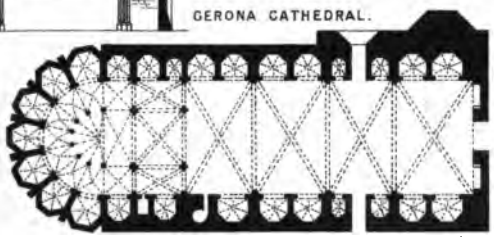
GERONA CATHEDRAL.

ALBY,
SECTION.

Ste TRINITÉ, ANGERS.



GERONA CATHEDRAL.



AISLELESS PLANS BUTTRESSED INTERNALLY.

Lith. Whiteman & Bass. London

London. Smith, Elder & C° 15 Waterloo Place. 1870.

UNIV. OF MIC

upper wall over the *inner* face of the buttress-chapels.* The choir opens into the nave by an arcade of three arches, and is itself divided by columns into central and side aisles. The whole would suggest a grand idea for a modern church—unhappily too grand to have much chance of being realised; for the two things that make such a design not merely endurable but sublime, are the loftiness of its proportions and the power shown in its construction. Carry it out in the common manner of the day, with low walls and a wooden roof, and it would have taken the one step from the sublime to the ridiculous—from a cathedral to a railway-shed.† Plans of this class have often been recommended for adoption from their apparent simplicity; but beyond a certain size, nothing, perhaps, would prove more costly. If they are to be architectural at all, they must have everything of the best. Whether any other than a vaulted ceiling might be admissible without quite destroying their character may, indeed, be uncertain; but height in the walls is plainly necessary. How to turn to account the deep intervals of the buttresses is another question. It has been proposed to use them as receptacles for monuments, for vestries, organ chambers, or staircases to a gallery. All such proposals only show

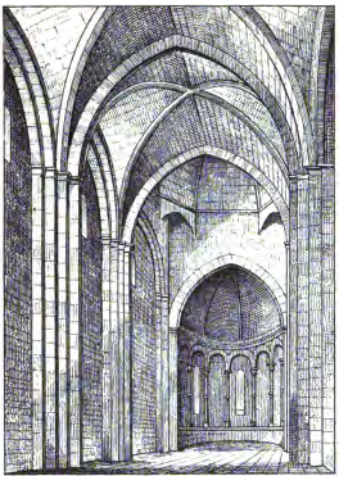
* By an error in our view, these chapels do not appear of the polygonal form which the plan represents.

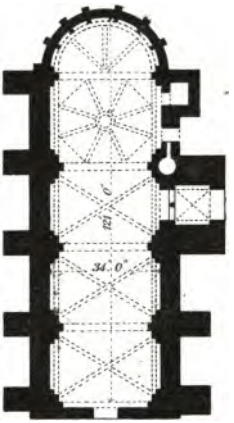
† A not unfavourable specimen of recent aisleless churches with wooden roofs, is St. Anne's, Warrington, by Mr. John Douglas. Its buttresses are partly internal, though their chief projection is outside. The detail is bold and simple, but scarcely atones for the lowness of the proportions, and the awkwardness of the general form.

that the type needs modification; it can hardly be exactly what is wanted, when it is so difficult to find a use for one of its most essential features. If, indeed, the length of the bays were increased, so that three or four such intervals could be united, they might be thrown at once into the area of the building; and, practically, this has been done in the domical churches to be noticed presently. There is another alternative: to cut a series of arches through the buttresses, and, instead of chapels, form a continuous side-aisle or passage to the seats. This, in fact, would be to return to the system described in the first paper, and suggested by the Dominican Church, Ghent. Either of these plans would make the space available which is now, for our purposes, wasted; and some such change seems to be required before these wide plans with internal buttresses can be regarded as models for direct imitation. They have, however, much to teach, and it would be impossible to omit them in any catalogue of the types which offer ideas for a modern church.

The church of Thaur* (PLATE XI.) shows what, at least, to an English eye, is the more familiar system of external buttressing. It is one of a numerous group of Romanesque buildings in the south of France, which, though very simple, possess high architectural excellence. They are seldom large, but generally well proportioned. Nearly all of them are vaulted, with transverse arches (rather than ribs) springing from wide and shallow piers. In the present case, the eastern bay is covered by an octagonal

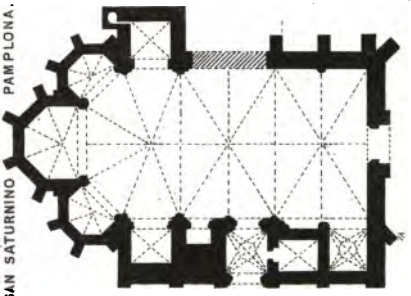
* From REVOIL.

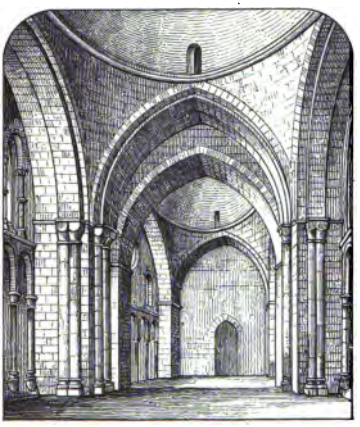




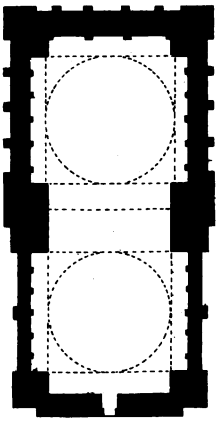
CHURCH OF THAUR, (VAUCLUSE)

SAN SATURNINO PAMPLONA.





ST ETIENNE, PERIGUEUX. PLAN & VIEW



AISLELESS STRAIGHT-SIDED PLANS.

Day & Son, Whiteman & Bass, London.

London, Smith, Elder & Co. 15 Waterloo Place. 1870.

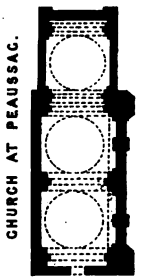
dome rising above the general level. The end, as usual, is apsidal. The whole area is nearly unobstructed, and very little change would be needed to make a church of this class all that could be desired in a modern one of similar size. The strength and refinement everywhere manifest in these works are remarkable. Their whole effect depends on masterly and well-studied construction. They have little—perhaps too little—ornament; but they have interest and distinctive character—they have breadth and repose; and they show how architecture, deprived of all adjuncts, can still assert its own power.

There remains a third class of straight-sided aisleless plans, and this is, perhaps, the most suggestive of all. The Byzantine churches of Perigueux and its neighbourhood seem to come nearer than any other to the ideal arrangement of this simplest form. Their architecture, indeed, never attained to anything like the mediæval perfection of detail. It has a kind of incompleteness about it which points to possibilities of development. As a starting-point for progress, a germinating style like this is, perhaps, more hopeful than one which, like the Middle Pointed, has ceased to grow, and almost begun to decay. The great characteristic of the type, as will be seen from the sketches, is a combination of the dome with the pointed arch; and here, as elsewhere, the use of the dome has led to wide spans and few obstructions. The church of Cahors* (PLATE XII.), for instance, is about 62 feet wide between the walls, and 52 feet between the great

* From VERNEILH.

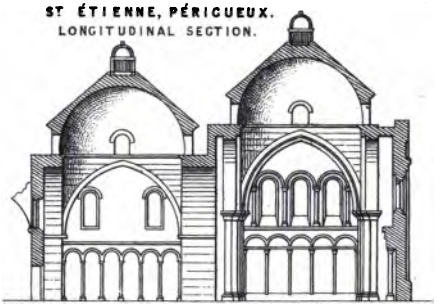
piers of the transverse arches. The projection of these piers —if they were as close together as the buttresses in a Gothic building like Alby—would be sufficient to make the space between them useless for the congregation. But here, again, the dome, by lengthening the bays to 50 feet instead of 20 feet, renders nearly the whole interval available, and combines an almost unbroken area with magnificent architectural capabilities. If a couple of detached columns were substituted for each pier, as they easily might be, and a side aisle or passage carried behind them, the plan would be open to still less criticism as regards the convenience of the congregation. Some idea of the internal effect may be obtained from the view of the church of Brassac* (PLATE XII.) It exhibits more of the usual ecclesiastical character than might at first have been anticipated from such a system, and is full of that quiet strength and refined beauty which are not the most prominent qualities in average nineteenth century work. In comparing the advantages of different forms of wide-span buildings, these domical churches have another point in their favour—they do not need the lofty proportions of a Gothic interior. While Alby, with a width of 60 feet, measures 90 feet to the summit of the groining, and Gerona, 73 feet wide, is nearly 130 feet high, Cahors has the apex of its great arches only 59 feet above the floor, or something less than its total breadth. The domes, it is true, rise above this, but the highest level of a dome is only a point, occurring twice or thrice in the entire length, while

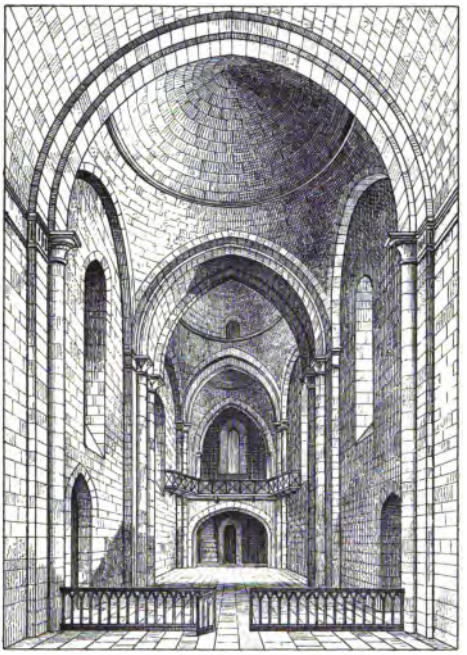
* From *Annales Archæologiques.*



CHURCH AT PEAUSSAC.

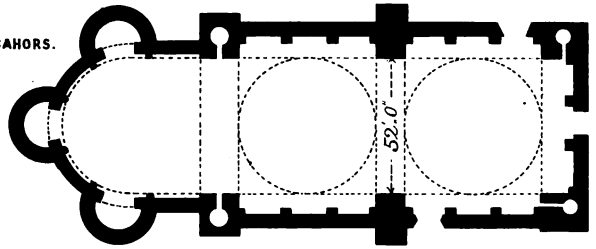
ST ÉTIENNE, PÉRIGUEUX.
LONGITUDINAL SECTION.





INTERIOR OF CHURCH AT BRASSAC.

CAHORS.



AISLELESS STRAIGHT-SIDED PLANS.

Lith. Whiteman & Bass. London.

London. Smith, Elder & C° 15 Waterloo Place. 1870.

UNIV OF MI

the apex of a vault is a continuous line. As to quantity of material, and consequent expense, the former is, therefore, hardly to be compared with the latter.

In external character these domical buildings would need much alteration to adapt them to northern tastes and climate. At the chief of them, St. Front, according to M. Verneilh's restoration, the backs of the pointed arches were covered by gabled roofs, whose ridges were parallel with and only a short distance over those of the arches. Above this level the domes appeared; not, however, in their spherical form, but with straight battering sides, surmounted by conical roofs. At St. Etienne, Perigueux (PLATE XI.), two of them are still visible externally, the eastern one being higher than the other; and a third bay originally existed in front of the present western wall. A comparison of several examples of this class shows the proportion of the height from the floor to the apex of the great arches to be to the width between their piers nearly as 4 to 3. In some cases, as at the Abbey church of Solignac, the proportions are even lower; and this reduction, though by no means a merit, is far less unpleasant than it would be in a Gothic building of similar span.

How to connect the wide nave of an aisleless church with a comparatively narrow chancel is a problem often needing some judgment to solve. A suggestion towards it is supplied by the plan of San Saturnino, Pamplona* (PLATE XI.). The extreme width here is about 50 feet, which is reduced at the east end, by a sort of apsidal

* From STREET.

termination, to something less than half. The eastern face of the apse, which is the largest, opens into what may be regarded as the chancel, and the two oblique ones into chapels, which, in adapting the idea, might be made very serviceable for other uses.* The entire length is scarcely 100 feet, and could be increased to some extent without destroying its advantages. This example is, perhaps, as large as any which are likely to be built on the simple oblong plan without columns; where greater space is wanted, one of the compound forms of aisleless plan will generally be preferable.

2. *Aisleless Cruciform Plans.*—The next type of aisleless plan to be examined is the cruciform one. Symbolism doubtless had much to do with its use, but not more than its inherent merits. So evident are these, and so simple and natural is the form, that it occurs to some extent in most styles, Pagan and Mahomedan as well as Christian. For the purpose now in question it has several advantages over the simple oblong plan. For instance, it groups a large part of the congregation round the chancel; by gaining space in the transepts, it admits of a narrower and therefore better proportioned nave; and internally it possesses the great artistic excellence of variety of view. A simple rectangular building, however highly decorated, always tends to become wearisome. It is all seen at

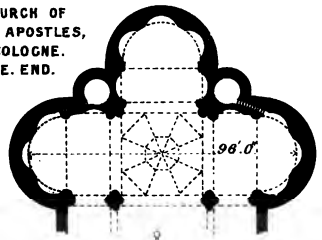
* An interesting example of the apsidal nave with aisles exists in the new church of St. Saviour's, Eastbourne, by Mr. Street. It has the advantage in this case of making the interior of the chancel visible from a much larger area than on the ordinary plan.

once; unlike an interior divided by columns, it has no succession of new perspectives and varied effects of light and shade. It may be grand, but it usually tends to become monotonous. It affords no play for the imagination—none of that endless change and mystery always inviting fresh study and promising fresh discoveries, from which so much of the perpetual charm of nature springs. The difference between a columnar building and a plain aisleless one, in this respect, is something like the difference between a mountainous country, where every turn discovers some new peak or stream or valley, and a plain, where one tedious mile after another hardly makes a perceptible change in the landscape. To say this, is not to say that a columnar system is always to be preferred; it is simply to indicate one great incidental advantage of it. The question is how far this advantage can be retained in a more convenient type. To a certain extent this was done in the straight-sided domical churches last described. Their walls, indeed, were all seen at once, as was inevitable on such a form of plan. But in their ceiling, from its peculiar construction, each change of position would bring some new dome or portion of a dome into view; and this, especially if the domes had possessed painted or mosaic decoration, would give a sustained interest to the work hardly to be found in a Gothic interior of the corresponding class. A cruciform church, however, admits of still more variety, its nave, chancel, and transepts forming at least three avenues of different kinds, or four, if a lantern tower stand at the crossing.

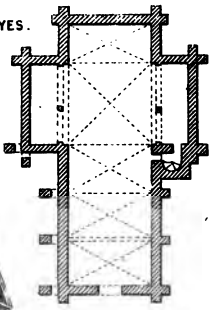
Of the simplest cruciform plan, the church of Simorre* (PLATES XIII. and XIV.) is an interesting specimen. It is situated in the department of Gers, not far from the Spanish frontier of France. As the massiveness of its piers and walling would indicate, it was intended to be available as a fortification, and did, indeed, actually stand a siege of some days in 1573. Externally its design is peculiar. The main building, rising far above the adjoining chapels, displays its cruciform shape and exhibits a low broad lantern tower at the intersection. All the main roofs, including that of the lantern, are of flat pitch, and surrounded by high battlements. The principal tower, of no great altitude, stands on the north side of the building. The square piers at the angles of the chancel and transepts go up above the parapet, and have plain pyramidal terminations. The walling throughout is of brick, and its severe strength and massiveness contrast forcibly with the delicacy and slenderness of the window tracery. The whole is full of character and expression, if not of beauty. Internally its proportions seem well adapted for a moderate-sized church. The nave is 33 feet wide; the transepts are slightly narrower; the extreme length inside is about 108 feet, and the corresponding width 73 feet. There are three bays to the west of the crossing, and one on each of the other sides. Four great arches enclose the central space, which is afterwards brought into an octagon by segmental ones across the angles. Each face of the octagon has a small window, and the whole is covered by a pointed vault.

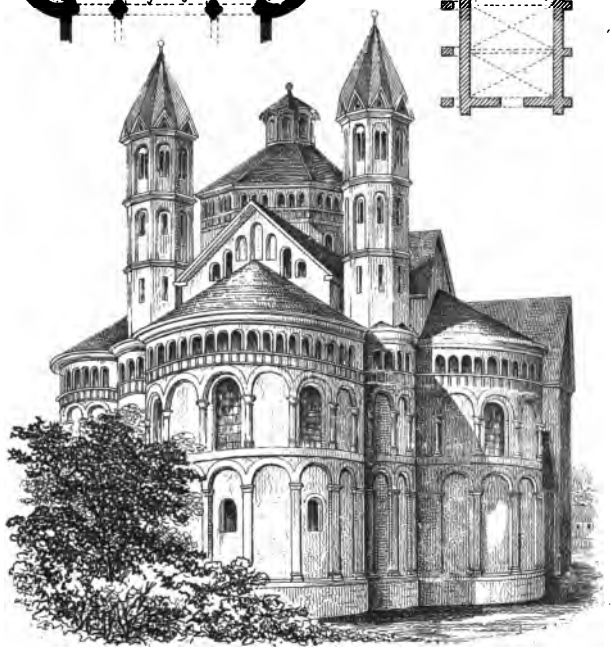
* From *Archives de la Commission de Monuments Historiques.*

CHURCH OF THE APOSTLES, COLOGNE. E. END.



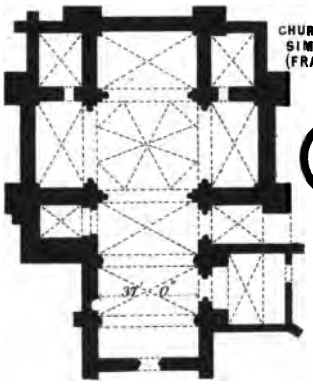
TROYES.



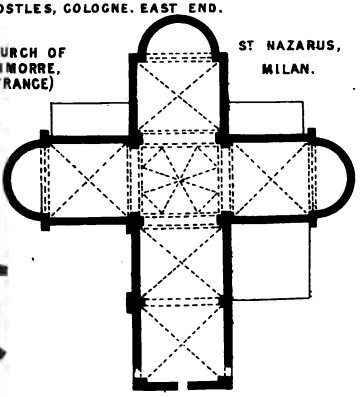


CHURCH OF THE APOSTLES, COLOGNE. EAST END.

CHURCH OF SIMORRE, (FRANCE)



ST NAZARUS, MILAN.



CRUCIFORM PLANS.

Lith. Whiteman & Bass, London.

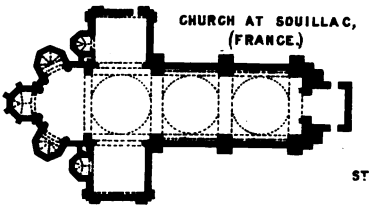
London, Smith, Elder & Co. 15 Waterloo Place. 1870.

UNIV OF MICH

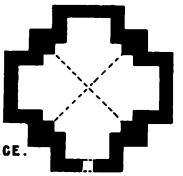
In the church of St. Nazarus, Milan,* the transepts as well as the chancel end in semicircles. The nave has two nearly square compartments of vaulting, each of the other arms of the cross one in addition to its apsidal termination; and the intersection is covered with an octagonal dome. The whole is of a simple round-arched style, and is noticeable for little except its plan. The projection of the transepts is evidently much greater than is desirable in a building meant for speaking in. Such deep and comparatively narrow recesses would doubtless prevent the voice from being clearly heard in the nave. But other apsidal cruciform plans may be found to which this objection does not apply. There are a number of examples having a wide nave with three aisles, which, in their eastern part, abandon the use of columns, and have choir and transepts vaulted from wall to wall. Of this kind is the Church of the Apostles at Cologne† (PLATE XIII.) Here the nave arches stop against two large piers, which help to carry the central dome. This dome corresponds in width to the middle aisle, and rests on four arches. Smaller arches, or rather half domes, bring the square thus formed into an octagon. From this springs the dome, likewise octagonal, semicircular in section, and terminated by a small cupola. The Romanesque architects covered in their domes as well as their vaults, and this one is enclosed externally by a lantern tower, with a polygonal sloping roof. Around the top stage of the lantern is one of the deeply recessed and effective arcades characteristic of the style. The enclosing

* From HUBSCH. † From BOISSERÉE.

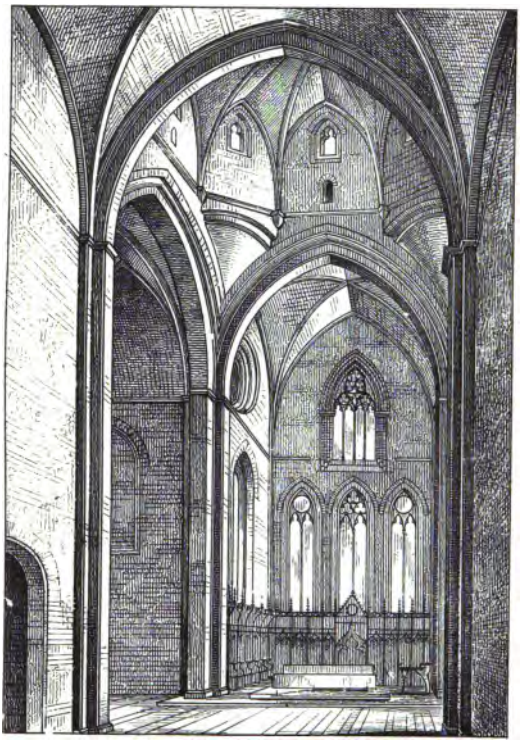
walls, as usual in this style, are carried up far above the springing of the dome. Their weight counteracts its thrust, and keeps it in equilibrium. It needs none of the chains and ironwork by which the most celebrated Italian domes are with difficulty upheld; and the piece of wall, added for the sake of its vertical pressure, and also as a base for the outer roof, is made, by the shadowy arcades which pierce it, a really beautiful piece of architecture. In the present case these arcades go round the choir and transepts, as well as the lantern, since these have likewise half domes, or, in their straight portions, short barrel vaults. Few churches of this interesting style deserve more study than the present one. Its plan might suggest an aisleless one with a nave not much wider than the existing middle aisle, or a nave of the present width, with a smaller number of columns. The main vaulting compartments, indeed, as it is, are square, and the main piers consequently wide apart; but intermediate columns are added for the sake of the side aisle vaults, two bays of which correspond to one of the centre. The churches of St. Martin, Cologne, and St. Quirinus, Neuss, resemble in their eastern part the Church of the Apostles. St. Martin, however, instead of a lantern, has a lofty tower and spire over the intersection. Laach Abbey Church, with a columned nave, has aisleless choir and transepts; but here, as in similar cases at Sinzig, Spires, Coblentz, Worms, and elsewhere, the choir alone is apsidal, while the transepts are square-ended. At Sinzig a slight alteration would furnish a good model for a plan with few



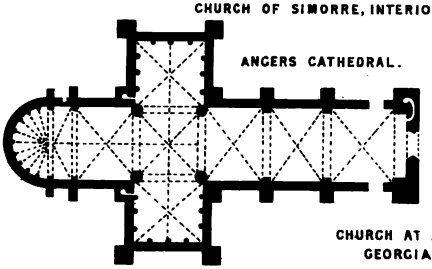
CHURCH AT SOUILLAC, (FRANCE.)



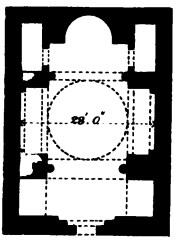
ST TIBURCE.



CHURCH OF SIMORRE, INTERIOR.



ANGERS CATHEDRAL.



CHURCH AT ANI, GEORGIA.

CRUCIFORM PLANS.

Lith. Whiteman & Bass London

London, Smith, Elder & Co. 15 Waterloo Place. 1870.

UNIV OF MI

columns, having a well-proportioned chancel, and a large open space around it. The German Romanesque examples of this type comprise some of the most picturesque buildings ever erected, and would well deserve examination for this reason, had they nothing to teach on the subject of arrangement. An eastern specimen of the same class—though a very small and simple one—is that of St. Elias, Thessalonica.* Here the apsidal transepts and chancel, if they may be so termed, form the whole of what is strictly the church. A narthex, divided by columns, and surmounted by a tribune, replaces the nave, and opens into the church by a range of three arches. Here, too, a dome, enclosed outwardly by a polygonal lantern, stands over the central space, and half-domes, with short barrel vaults, cover the three semicircular-ended arms of the cross.

The small church of Ani, in Georgia,† belongs to a class in which the transepts do not extend beyond the outer walls, and in which, therefore, the cruciform shape only appears in the upper part of the design. It is, in fact, very much what one of the Eastern four-column churches would be if attached piers were substituted for the columns. The nave, transepts, and chancel—as it is convenient still to call them—all rise to the same level, and have low-pitched roofs of stone. At their crossing is a central dome, on a high tambour, pierced with narrow lights, covered with a straight conical roof. Externally it is decorated with an elegant arcade of round arches on slender shafts, and similar arcades, of a refined Roman-

* See TEXIER and PULLAN. † From TEXIER.

esque rather than Byzantine character, surround the lower walls. Those portions of the oblong plan which are omitted from the cruciform one have narrow lean-to roofs, falling towards the sides.

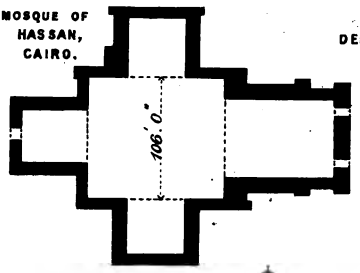
The external design of cruciform churches, even when aisleless, admits of considerable variety. In most cases, however, it includes a central tower of some kind. This, in fact, was the natural result of having at the intersection a dome or vault rising above the rest of the vaulting. The tower served both to enclose it and to resist its outward thrust, and its proportions would usually be somewhat broad and low. The Spanish lantern towers, to which this description often applies, are among the finest. The difficulties of a Gothic dome, it has often been remarked, are rather external than internal; and these lanterns, though they chiefly appear in aisled churches of large size, suggest some modes of dealing with them which may apply to other cases. At Tarragona the crossing is covered by an eight-sided domical vault, each side enclosing under its wall-rib a group of lancet windows. The base of this vault is nearly on a level with the apex of the nave vaulting; at Salamanca, however, it is further raised on two arcaded stages, each pierced with long windows. Here the enclosing lantern forms a striking feature, with its polygonal plan, its circular turrets, and its crocketed roof of stone. At the Collegiate Church of Toro is a rather similar lantern, with circular turrets and two arcaded stories, ending in a roof of low pitch, surrounded by a parapet. The domes of the Lombard

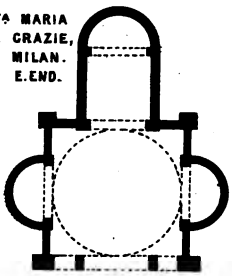
churches, enclosed by octagonal towers, with low-pointed roofs, are also worthy of notice. Where the lantern was thus confined to its primary purpose of forming an enclosure and abutment to the central dome, the bell tower was of course a separate structure, and not unfrequently stood, as at Simorre, in the angle between the nave and transepts.

3. *Cruciform Plans with Central Space.*—When the simple cruciform plan is pushed to its extreme size one of two things happens: either the nave and transepts become unmanageably wide, or they have to be made so long as to become very bad for sound. At this point another expedient suggests itself, which both gains space, shortens the otherwise deep recess of the transepts, and supplies to the interior a central feature of striking grandeur. This expedient is to enlarge the space round the crossing of the four main avenues of the building. This space may be of whatever form is found most convenient for roofing—square, oblong, circular, or polygonal. It affords a grand unobstructed area, the actual size of which would be displayed by the relative smallness of the arches into the adjoining divisions. It contains, moreover, the elements of great variety in the different kinds of design befitting the nave, the centre, the transepts, and the chancel. In no case, perhaps, have its capabilities yet been turned to the best account, and no single example shows how much might be made of it. It is a type that still remains to be perfected, and one, as it seems, well worth attention. The difficulties of adapting it, though not small, do not

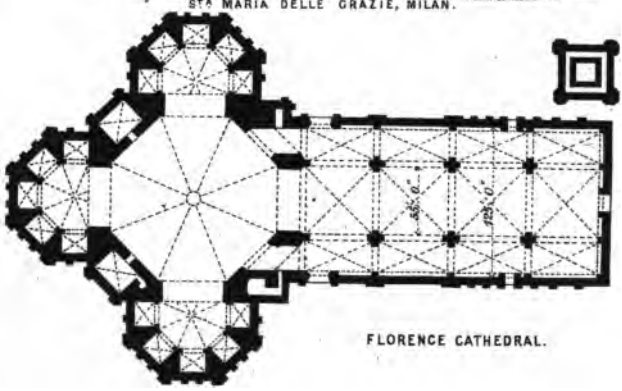
seem to be insuperable. The greatest of them would, doubtless, be the external treatment of the central space. One mode, and a rather successful one, in which this has been met is to be seen at Santa Maria delle Grazie, Milan.* (PLATE XV.) Though the details here belong to the Renaissance period, the general conception would harmonize with a purer style. It is, of course, chiefly the eastern part of the church which is noteworthy. The nave is an aisled one, with two ranges of columns, and is flanked by chapels between the buttresses. But in this church, as in the much earlier ones previously described, the use of columns is abandoned at the central dome. This, or rather the square space beneath it, measures about 63 feet across, corresponding to the whole width of the nave from wall to wall. On its western side are two large piers, against which the nave arches stop. Facing this is the chancel, some 30 feet wide, and on either hand is a semicircular recess in place of a transept. The great dome rests on pendentives, which start from arch-mouldings, concentric with those of the chancel and transept, but wide enough to take in a whole side of the great square. But it is not for the internal design that this church is worth notice. It is for the external treatment of the central feature. This, in its general conception, follows rather the Romanesque than the Italian system, having a polygonal enclosing wall, and being terminated by a straight roof of low pitch. The wall is decorated by panelling, and in its upper stage by a deeply-recessed arcade.

* From RUNGE.





STA MARIA DELLE GRAZIE, MILAN.



FLORENCE CATHEDRAL.

CRUCIFORM PLANS WITH CENTRAL SPACE.

Litho Whitmore & Bass. London.

London. Smith, Elder & C° 15 Waterloo Place. 1870.

The Mosque of Sultan Hassan* shows the union of an oblong central space with a cruciform plan. There is nothing remarkable in the rest of the building, the centre being merely an open court; but the arrangement is typical of the class, and might be used to good purpose. It is, indeed, rather a favourite one in the East. Several examples, with an octagonal space at the intersection, are given in M. Coste's *Monumens Modernes de la Perse.* One of the most interesting of them is a small bazaar at Ispahan.† (PLATE XVI.). Its treatment has considerable affinity with a mediæval one, and the idea might without much difficulty be translated into an European style. The principal space here, properly speaking, is a square with the angles cut off, the four faces from which the avenues diverge being wider than the rest. These avenues are spanned at intervals by four-centred arches, and the intermediate spaces covered by pendentive domes. The great dome over the intersection has, apparently, pendentives of pointed domical form, which are continued far enough to lessen considerably the width to be ultimately covered. The whole work is carefully executed in brick, with coloured ornament in glaze or enamel. The width of the avenues is something less than 30 feet.

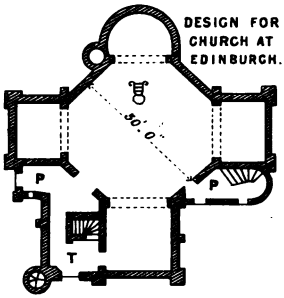
But the finest, or, at any rate, the largest, example of a cruciform plan with an octagonal centre is, of course, the eastern part of Florence Cathedral.‡ (PLATE XV.) The octagon here is 136 feet in diameter, with three

* From GUHL and CASPAR. † From COSTE.
‡ From RICKERT.

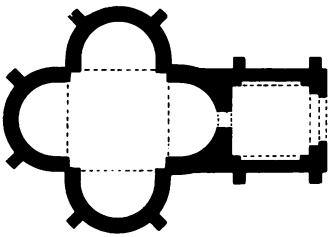
apses in the position of choir and transepts, and with numerous chapels so spaced as to resist the thrust of its immense dome. This, unfortunately, is less skilfully designed than the smaller one at Milan, and the effect of its vast unbroken curvature is simply to dwarf and crush every other part of the building. The working out of the idea, in short, is far from equalling its beauty on plan. It has been supposed that the original intention was to treat this dome externally like those at Chiaravalle, and at the Certosa of Pavia, making it a kind of tower with rapidly-receding stages, richly arcaded, and surmounted by a polygonal lantern or cupola of small diameter. Such an arrangement would undoubtedly have given scale and apparent magnitude, and in these respects have been infinitely preferable to the present one; but by adding weight to the crown of the dome it would have increased the difficulty of its construction as much as the Romanesque plan of upright enclosing walls would have lessened it.

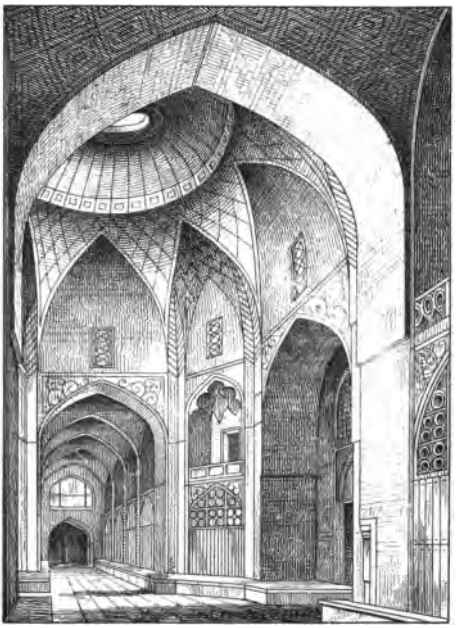
4. *Plans based on the Circle.*—The last class in this rapid survey of some of the chief forms of plan which unite convenience with architectural promise, is that of buildings based on the circle. It is one which has been very frequently referred to by writers on the present subject, and there is a sort of vague notion now and then put forward that, as far as the congregation is concerned, a circular plan would be the best possible one. The modern examples of it, however, by no means support this belief. Of their failure in architecture it is not worth speaking, since the best idea may fail through falling into bad hands.

DESIGN FOR CHURCH AT EDINBURGH.



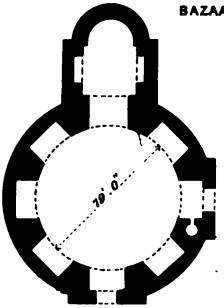
CHAPEL OF STE CROIX, MONT MAJOR.



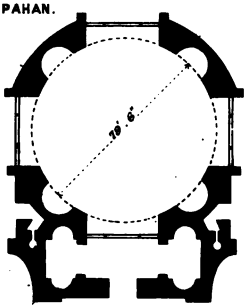


BAZAAR AT ISPAHAN.

ST GEORGE, THESSALONICA.



HALL IN BATHS OF AGRIPPA.



PLANS (WITHOUT COLUMNS) BASED ON THE CIRCLE.

Lith. Whiteman & Bass. London

London. Smith, Elder & Co. 15 Waterloo Place. 1870.

But the very points in which their strength was supposed to lie have proved some of the weakest. They have not been successful acoustically. The voice echoes and reverberates round them. The concentric distribution of seats, too, which has usually accompanied them—the system by which a great part of the congregation face each other, is seldom satisfactory. It is the arrangement for a lecture-hall or a theatre, rather than for a church. "A simply circular plan," too, as Mr. Fergusson observes, "is always unmeaning and inconvenient." It has no principal axis, and no leading features. It is monotony carried to an extreme. But used in combination, the case is very different. The circle, or some forms arising out of it, may, for instance, have the very highest value at the centre of a cruciform plan, such as those just noticed. Supplemented as it is there, by nave and transepts, its diameter will, moreover, be much smaller and more manageable than where it stands alone.

A hall in the Baths of Agrippa,* (PLATE XVI.) now in ruins, suggests such a combination of the circle with the cross. Of the original design, beyond the fact of its having been domed in brick and light porous stone, little is known. It had a widely-spreading abutment, in the shape of a thick wall, but, as usual, space and materials were economised by the formation of recesses in its lower part. The line of thrust being, of course, not vertical but diagonal, the inner part of the wall, near its base, offered very little resistance to it, and might be in

* From ISABELLE.

great part removed without loss of stability. Hence the number of niches or semicircular chambers commonly found in works of this class, amounting in other cases to eight or twelve. Often the main wall is reduced in thickness above these niches, and they are covered in either by a continuous roof, or by a range of separate conical ones. In the Church of St. George, at Thessalonica,* there are seven rectangular chapels in the immense thickness of the enclosing wall. This is no less than 18 feet below, but is reduced to about half above the lean-to roof of the recesses. The dome is walled in, and covered by a low pointed roof. The interior, which is most elaborately adorned with mosaics, is lighted by two tiers of round-headed windows.

Amongst the forms based on the circle, both the octofoil and quatrefoil may be occasionally met with. The latter is found at Ste. Croiz, Montmajor, where, however, it encloses a square vault instead of a dome. The octagon is more common, and the Karlhofor Church,† Prague, (PLATE XVII.) shows it on an unusually large scale.‡ The small octagonal chapel at Lâon,§ said to have belonged to the Templars, has a two-storied porch in addition to the nave and chancel. The internal diameter is only

---

* From TEXIER and PULLAN.

† From KUGLER.

‡ Among recent churches based on the circle, that of St. George, Tuffnell Park, by Mr. Truefitt, is noteworthy. It has a round nave about 96 feet in diameter, within which stand eight columns supporting an octagonal clerestory. There is an apsidal chancel, and a detached tower is to be added at the west end.

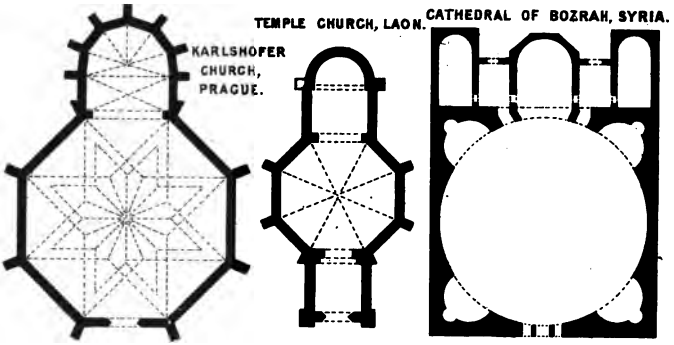
§ From LENOIR and JOHNSON.

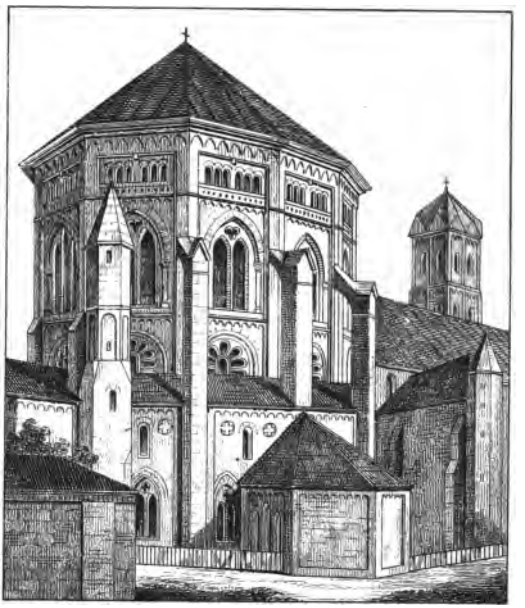
24 feet. It is vaulted and buttressed at the angles. A hexagonal plan exists in a beautiful little chapel at Cobern. And, to make a wide leap in style, though not in arrangement, a square plan with a circular interior 90 feet across, is to be traced in the ruins of the Syrian Church of Bozrah.* (PLATE XVII.). Most of these forms might have a place in design, undesirable as it would be to use them as complete designs by themselves. But there is another type which has a kind of completeness found in few plans related to the circle; that seen in the nave of St. Gereon, Cologne.† This approaches nearly to the ellipse, but it is in reality a *vesica* with the points cut off. Internally it measures about 66 feet by 59 feet. It may be described as having two curved sides and two straight ends. The entrance door occupies one of these, and the chancel arch the other. There is thus a well-marked principal axis to the building, and a very different effect from the confused one of an ordinary round church. The convergence of the sides towards the principal arch forms a good transition from the wide nave to the narrow chancel. It effects a structural and, so to speak, vital connection between them, which does not always exist in similar cases. Each side of the nave is divided into four bays, and each bay contains a circular recess of the kind before described. These recesses or chapels are only carried to about half the general height. They are covered by a lean-to roof, and the main wall sets back over their inner

* From TEXIER and PULLAN.

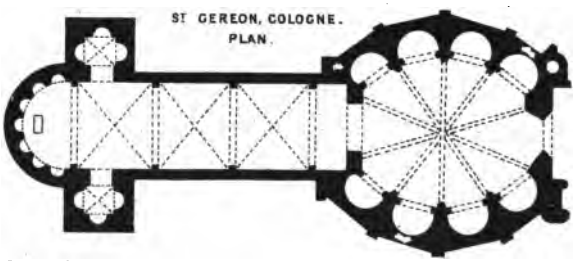
† From BOISSERÉE and CHAPUY.

face. The exterior forms a polygon of ten sides, supported in its upper part by a flying buttress at each angle, and covered in by a steep pointed roof. The vault within has a similar number of ribs springing from wall shafts, and meeting in a point at the summit. The lighting is chiefly from above; a series of large two-light windows pierce the upper part of the wall, and a range of the multifoiled arches peculiar to early German work occupies the level beneath them. On the whole, St. Gereon would doubtless make a better model in its actual state than would the strictly circular churches. Looking at it in this light, one obvious question is, what to substitute by way of abutment for the lower wall, with its recesses? Probably there would be no great difficulty in replacing most of its thickness by a narrow aisle, serving only as a passage, and divided off by short piers and arches.





ST GEREON, COLOGNE. EXTERIOR.



PLANS (WITHOUT COLUMNS) BASED ON THE CIRCLE.

Lith. Whiteman & Bass London

London, Smith, Elder & Co. 15 Waterloo Place. 1870.

CHAPTER IV.

GALLERIED CHURCHES: IRON COLUMN CHURCHES: CONCLUSION.

The general Condemnation of Galleried Churches—Good Reasons, in much Modern Work, for its Condemnation—The Frequency, nevertheless, of Galleries in fine Ancient Buildings—How these Galleries differed from ours—Three Descriptions of Gallery: the Aisle-Gallery, the Recess-Gallery, and the Balcony—The second generally the best—Design for a Church on this Principle—The Theatre Plan often advocated for preaching in—Its Advantage and Defects—Iron-Column Churches—How to improve them—Design of Cast Iron—Conclusion: Necessity of Toleration for new Ideas in Church Design: a vertical Type of Gothic not to be too much insisted on: Arrangements suggested for Adaptation: Cost: Style.

TO say that a church has galleries, is, with most people, quite enough to condemn it. In this one statement they find a sufficient clue to its artistic character. They know, by experience, to what sort of architecture galleries are usually joined, and they have no wish for a closer acquaintance with it. And, in truth, it rarely happens, in modern work, that the gallery is anything but an eyesore and a detriment to the building. Seldom is it accepted as one of the main con-

ditions of the case, and incorporated into the very essence of the design. The idea that generally suggests itself is that it was forced in against the architect's will. He had built his church with long windows, and tall columns: he had relied for effect throughout on unbroken vertical lines, —when suddenly a set of Vandals stepped in and destroyed them all. They barbarously cut his windows in half, and hung a system of beams and framing to the middle of his columns; they obliterated all his verticality with a horizontal feature strong enough to overpower everything. And they had not even the grace to consult him as to the least objectionable way of doing this. They made their gallery here three seats wide and there six; so that even its junction with the wall is not quite horizontal, but steps up a yard or two higher in one place than in another. Nay, the very plan of it does not fit the building. There is not a piece of circular walling about the church, but a great part of the gallery front is either curved or polygonal on plan, and has no relation whatever to the forms which adjoin it. Perhaps this last fact explains the mystery. It was not made for the building after all. Some one, doubtless, bought it cheap at a sale of old materials, and had it put up in hopes of its being an improvement.

Such is the impression often made by a modern galleried building. And yet some of the finest ancient churches in existence are galleried ones. In early times, both in Europe and Asia Minor, galleries were in frequent use, and even in the Gothic period they were by no means abandoned altogether. It is needless to say that they were nothing like

those wooden stages which it has been the custom here to fix about halfway up the nave columns. The churches were designed for them, and they were just as permanent in their materials, and just as architectural in their treatment, as any other part of the interior. There is, however, nothing marvellous or recondite about ancient systems of gallery-design. They proceed on the simplest and most natural plan—the plan which, but for the influence of bad customs, would suggest itself to every one. They do not try to disguise the gallery, or to make believe that the building is all in one story. They do not run the nave piers up without a break and keep the gallery a little back, with the idea that it will not be noticed. They give up at once the thought of making the church look as if it were all in one height ; they recognise the facts of the case and embody them in solid and permanent construction. In these points all examples agree. Whether they were Roman, Byzantine, Gothic, Saracenic, or Renaissance, galleried buildings were always treated, both within and without, as two-storied ones. If they had a nave and aisles, there were two tiers of nave arches one over the other, the first to carry the gallery, the second the clerestory or roof. If they had a few piers placed very far apart, so that a single arch could hardly span the distance in the limited height beneath the gallery, then a secondary arcade of several arches was introduced to support it. If they had no columns, and the gallery ran across a transept or recess or across the end of the nave, it either rested on a single arch, or on several small ones, as in the last

case. In short, where arched construction prevailed, there were always separate arches beneath the gallery; and where stone lintels were also admitted in the main divisions, these sometimes found a place there. But everywhere alike it was built on the same principles and of the same materials as any other part of the structure.

Galleries naturally divide themselves into three classes:—which may be named, for the sake of convenience, *aisle-galleries*, *recess-galleries*, and *balconies*. The *aisle-gallery* is simply a repetition, in a second story, of the outer aisle of the building. The pillars and arches of the lower aisle support the gallery floor, and above this is another set of pillars and arches supporting the roof. Many of the smaller churches on the Rhine are provided with galleries of this sort over the aisle vaulting. A French example, Flavigny,* carries this arrangement as far as any of them. The usual nave arches, on piers of rather low proportion, divide off the side aisles, and range with the vaulting of the latter. Above these arches is a stringcourse, and then another arcade very similar to the one below. This opens into the gallery, which has the top of the aisle vault for a floor, and a separate vault of its own for a ceiling. What was the original gallery front does not appear; at present there is a balustrade of late date. Many of the early churches of basilican form are galleried. Sta. Agnese, Rome, is one of the most favourable specimens. It has a western and two side galleries carried by round arches on Corinthian columns. The upper arcade,

* See GAILHABAUD'S *Architecture*, and KING'S *Studybook*.

which is somewhat shorter, but of similar character, supports a clerestory. St. Demetrius, Thessalonica, a Byzantine example of the same type, has a gallery over both narthex and aisles. The nave arcade, as usual, is in two stories, the lower opening into the aisle, the upper into the gallery. The parapet of the latter is inserted between the columns. Like them, it is of marble, and is adorned with monograms and flat ornaments. A gallery over the narthex or vestibule, by the way, is very common in these eastern churches. The arrangement is worth notice for our own purposes. A good porch is as useful in a rainy climate as in a hot one; and a gallery causes the minimum of inconvenience when, as here, there are no seats beneath it. Of course it would involve changes in design, such, perhaps, as the substitution of a range of lights for a large west window; but it is more than doubtful whether an occasional change of this sort would not be a great relief. In all the cases hitherto described, the under and upper aisles are treated as separate horizontal masses, like the different floors of an ordinary house. But, in other examples, they are connected by a single column, which springs unbroken from floor to vault, and against which the shorter columns of the two arcades abut. It is, in fact, analogous to the vaulting shafts in our larger churches, which link nave-arch and triforium together, and show that the vertical and not the horizontal tendency is the ruling one in the design. These are very different things from the detached columns standing clear in front of certain modern galleries. In old work the primary and secondary columns are all bonded together

and formed into one inseparable whole. There is no fruitless effort to combine the effect of a single grand story with the accommodation supplied by two short ones.

The nave and aisles system, however, is not that in which galleries either appear to the best advantage, or can be designed most favourably for the convenience of their occupants. On this system a galleried church, divided as it is into two low stories, can hardly equal in dignity a lofty and unbroken one. And on the sides at least the piers would obstruct the sight just as much in the gallery as they now do on the ground floor. All that was said about the failings of the system applies with double force when galleries are added to it. Still, if an inconvenient arrangement *must* be carried out, it might as well be carried out architecturally; and the examples just cited prove that even in an aisled church galleries need not be the abominations they often are. But this arrangement, as it has throughout been attempted to show, is very far from being thus inevitable. It is possible to keep the gallery quite free from obstructions to sight, and to make it, instead of an eyesore, a positive aid to effect. On the plans hitherto described, for every column below it, there is a corresponding one above. On the plan now to be noticed, each of the upper arches is large enough to include from three to six of the lower ones. There is an arcade to support the gallery just as before, but it has nothing else to support, and the shafts may therefore be very slender. There is a parapet of stone or marble, pierced, panelled, or inlaid, and the whole is thus a permanent structure and an

integral part of the design. But all above is clear space. No columns go up to shut out the gallery from the church; for the great arch either stretches across it from wall to wall, or, at most, rests on a couple of piers which may be placed so as to be almost out of the way. This is the *recess gallery*, most common in Byzantine work, though something of the kind may be met with in Gothic, and it would, in any case, easily adapt itself to that style. Such a gallery has no resemblance to those which in modern buildings sometimes project from the sides of a room roofed in one span. It always stands either between piers or in recesses. At Sta. Irene, Constantinople, as may be seen by referring to PLATE VI., it does the former. In this example, indeed, the situation of the great piers is nearly as bad for sight as it can be, and the columns of the lower arcade are very much larger, as well as closer together than would be necessary in repeating the idea. But the system is none the worse because it was not worked precisely into the shape in which we want it. No doubt, as Mr. Carlyle expresses it, "it were infinitely handier" if it had been so; if by merely copying a church built so many hundred years ago, we could at once find the fulfilment of all our requirements. But as the world goes on changing, and the ideas of each age are very different from those of the previous ones, it seems likely that each generation must continue to use its own brains, and must rely on its predecessors, not for copies and rules, but merely for suggestions and general principles.

The galleries of this second type form important

features in design, and could ill be spared from many of the buildings of which they form a part. They serve to connect widely-separated features, and to prevent that straggling look which often pertains to interiors with very wide bays. And they are still more valuable in giving *scale*, in helping the eye to discover the real magnitude of these vast structures by the number of secondary arches which are needed to fill in each of the principal ones. They are, in fact, a gain, and not a loss, to the architecture to which they belong. And the shafts of their supporting arcades might be kept so small as to produce very little obstruction. Small shafts in important positions indeed (under pier arches and roofs, for instance), have proved unsatisfactory enough; but small shafts in .subordinate features like these will only set off the strength of the principal ones. Once let the main piers on which the chief construction depends be strong enough and massive enough, and the intermediate ones may be reduced to very small dimensions. To have everything large alike is to produce not strength but clumsiness; contrast is the very essence of art. For the details of these gallery arcades an abundance of suggestive examples remain. The galleries round the courts of Spanish palaces and monasteries, and the double loggias of certain Gothic buildings in Italy, furnish many valuable ideas, which only need some modification in style to become available. Arches of almost every form may be found—pointed, round, trefoiled, and quasi-elliptical; and parapets with tracery, panelling, inlaying, and flat carving. The one principle

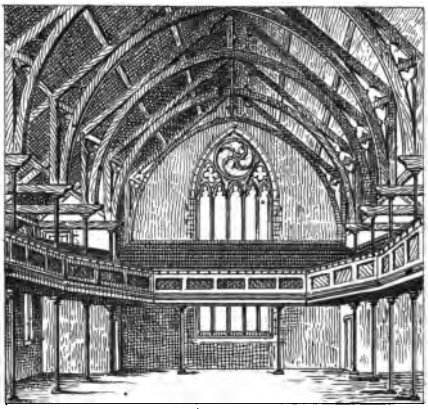
everywhere discernible is that the gallery construction should be of a piece with the rest; that where it belongs to an arched building it should be carried on arches, and that where it is connected with stone piers it should itself be of stone.

There is yet a third type of gallery, frequent enough in modern buildings, though ancient examples of it are rare, except on a very small scale. This is the *balcony;*—a mere projection from an internal wall. It is, when wide, the most difficult form of gallery to manage: the one which most refuses to combine with the rest of the architecture, and which most overpowers the vertical lines of the building by its heavy horizontal mass. St. James's Hall, Piccadilly, supplies as favourable an instance of it as can perhaps be found. But taking it thus at the best, it would be hard in a Gothic building to keep it as subordinate as it should be; and either of the previous arrangements seems to be more promising for church architecture. The latter of them, especially the recess-gallery, is perfect as regards convenience, and not very deficient in artistic capacity. There is an example of it in the modern church at Troyes, (PLATE XIII). The frontispiece shows another attempt at working it out, of which the plans will be seen in PLATE XVIII. This design, as will be evident from the arrangement of the apse, was prepared for a Nonconformist church, to seat about 1,250 persons. Of these, the ground floor holds 850, and the remainder occupy a gallery over the entrance porch, and two galleries in the transepts. These transepts are shallow to prevent loss of sound, but yet

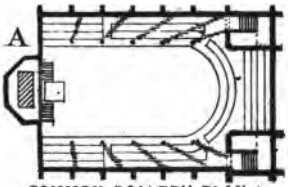
sufficiently deep to form abutments to the great arches on which the central lantern tower rests. The gallery arcades and parapets are of stone. The side aisles, between the front of the building and the transepts, are only wide enough to serve as passages; and the nave columns, substantial as they are, scarcely interfere with the view from a single seat. The stairs start from the large porch under the end gallery: and this gallery communicates with the side ones by short passages over the side aisles. Above the inner wall of these passages is a low clerestory. On the outside there is thus a nave divided from the aisles in the usual way, an octagonal lantern tower, and an apsidal chancel; while within, the central view is as open and unbroken as if there were no galleries at all.*

The recess-gallery, here adopted, is doubtless that which interferes least with internal architecture. And since it may be kept entirely free from obstruction,—since there are no columns above it, and no obstacles to prevent its occupants from seeing and hearing the service, it seems to fulfil all the conditions of the case. It is not, indeed, the form which has been most frequently adopted. Had it been so, perhaps galleries would not have acquired such a bad name as they have among persons of taste. But hitherto the aisle-gallery has been, at least in large buildings, the almost universal one. In the use of it there

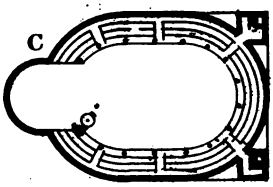
* The estimated cost of this design, it may be useful to state, was 8,000*l.* in the neighbourhood of London; a lower price per sitting than that of many churches with iron columns, and comparatively slight construction.



A COMMON MODERN TYPE OF GALLERIED CHURCH.

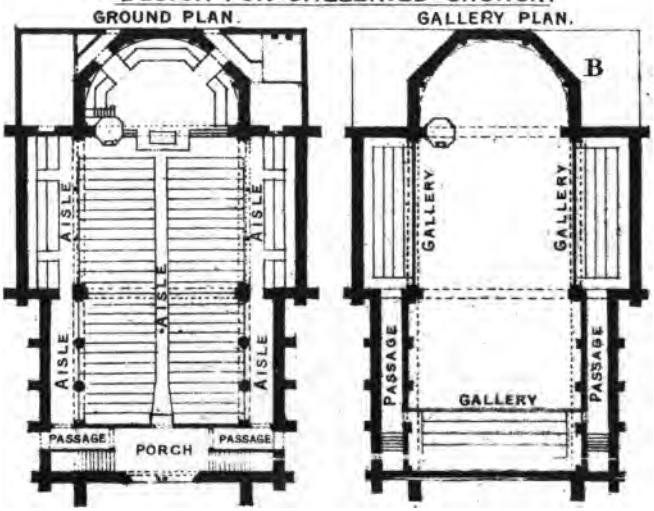


COMMON GALLERY PLAN.



GALLERY ON THEATRE SYSTEM.

DESIGN FOR GALLERIED CHURCH.



GALLERIED CHURCHES, CUSTOMARY AND SUGGESTED.

Photo-Litho. Whiteman & Bass London.

London. Smith, Elder & C° 15 Waterloo Place. 1870.

are two great difficulties. First, it cuts all the vertical lines of the building in two, and so spoils its proportions: and next, the columns, both above and below it, are so badly placed for causing obstructions, that for the sake of convenience they must be kept very thin. The outline plan (A) (PLATE XVIII.) is a common arrangement of this sort; and the lines drawn from the pulpit show how columns in this position interfere with the view. Hence this sort of gallery has naturally led to the use of iron columns; and iron columns have helped to develop a weak and unsatisfactory kind of architecture. Compare this plan with the upper plan (B) (PLATE XVIII.) of a recess-galleried church, such as that of which there is a view in the frontispiece. On the common system (A) there will be at least sixteen columns: eight above the gallery and eight below, inconveniencing, on a moderate computation, at least fifty persons. And if they are not to cause much more inconvenience even than this, the columns must be kept very small. To make them of stone would be quite out of the question. We are bound down to thin iron shafts and their consequences,—slight construction and starved design. On the other system (B) there are four columns below the galleries and none above them. These, on a similar computation, will not be in the way of more than a dozen people altogether. The main piers, on the ground floor, obscure nothing but the aisles, where nobody sits; so that these may be of stone, and just as large as we like. The inconvenience is reduced to a minimum,—and yet the architecture may be as massive as can be wished.

Where preaching holds a very prominent place, the theatre plan has sometimes been advocated as the best. And, possibly, when a very large congregation—say of three thousand or more—has to be provided for at a cheap rate, some approach to it may be necessary. It is, after all, only a variation on the aisle-gallery. It contains one or more such galleries arranged in a semicircular or horseshoe form (C) (PLATE XVIII.), instead of an oblong one. The difficulty of retaining ecclesiastical character in such a type is evident enough. However convenient, it would be hard to make it beautiful, and even its convenience has certainly been overrated. The great merit which its advocates claim for it is, that it makes all the congregation face the pulpit. As far as the ground floor is concerned, this could as easily be managed on almost any form of plan. In the lower area, then, the theatre system has no advantage over others. In the galleries, undoubtedly, more of the seats directly face the pulpit than in such a plan as A, or even B. But the benefit of having the seats directed with mathematical exactness towards the minister has been much exaggerated. It is one of those merits that look great on paper, and turn out comparatively small in practice. The difference between looking at an object precisely in front of one's seat, and at one thirty or forty degrees on either side of it, can hardly be said to involve a question of comfort at all. The one is just as easy as the other. A very slight change in the position of the body sets the matter right; and few persons would remember, an hour afterwards, whether their seat

was or was not set out with the nicety which has sometimes been advocated. Of course, when the turn to be made approaches a right angle, there is a real inconvenience, which ought to be avoided. But in moderation, the evil which it is sought to escape is almost, or altogether, imaginary. At the utmost, it is much less than that caused by the multitude of columns needed to support the galleries on the theatre plan. The gain in making the seats face the pulpit will not, unless in a very long building, at all equal the loss in having the view of the pulpit shut out by pillars. And the plan involves such a multitude of these pillars, and puts them in such unfortunate positions, that, if they were of stone, they would cause a very great obstruction indeed. Looking thus at all sides of the question; at the little that is to be gained (at least, in a moderate-sized building) by making the seats exactly face the pulpit; at the real inconvenience caused by the multitude of columns, however small; at the difficulty of giving any elevation of character to a design of this description; and at the necessity for using small iron shafts, with all that their use involves, both in internal and external architecture,—it does not seem that the theatre system quite deserves the praise which, in some quarters, has been bestowed on it. In the few exceptional instances where a vast number of people have to be brought within range of a single voice, some analogous arrangement may, perhaps, be almost inevitable. But in ordinary cases it is not superior to many other plans in convenience, while it is far inferior to them in artistic capability. Still, if it

is used, it should be carried out thoroughly. If a building has a circular gallery, and so far resembles a theatre within, it can scarcely, with consistency, resemble a common aisled church without. Attempts at a compromise of this sort are frequent enough. But they nearly all end alike: they make the inside of a building a muddle, in order to make the outside a sham. Here and there a more natural principle has been followed, and a circular or polygonal front proclaims what is to be found within. And if the theatre plan is to be fairly and honestly worked out, it must modify external design in many other ways than this. It will lead, for instance, to a horizontal, rather than to a vertical, form of architecture. Thus, there will commonly be two or more tiers of windows in the height; and these windows, being usually short, will often take the shape of a continuous arcade. Similar results will follow elsewhere, and it will soon be found that the desire for a lofty, vertical style is decidedly opposed to all the conditions of the case. It is hardly necessary, however, to remark that the idea of such a style alone being Gothic is a very mistaken one, and that the way to obtain good architecture is to develop, not to fight against, the strongest tendencies of the construction. But the reasons given above make it more than doubtful whether study would not generally be better spent on some more promising type than that of a theatre, and especially on that other form of gallery which has been before described as adapted to a transept or recess.

If building sites were always large, and money always

abundant, there might be little cause for considering the subject of galleries at all. But as there is sometimes not much choice about using them, it appeared worth asking how they might be made least objectionable. And the same fact supplies a reason for noticing the treatment of cast iron in church building. An iron column church can hardly be expected to vie with a stone one either in beauty or permanence. Metal is not likely to supersede masonry in high-class work. But where economy is imperative, it has two advantages: its cheapness and the small dimensions in which, from its great strength, it may be used. The misuse of this last advantage, indeed, has injured most of the architecture into which it has been admitted. The main pillars of the building have degenerated into mere iron props, often a dozen or more in number. But suppose that these were replaced by a very few clusters of iron shafts, or even by a few substantial iron piers. Suppose, in short, that some of the "few column" plans (PLATES II. to VI.) were translated, so to speak, into a new material, and worked out with columns, small as compared with the piers of the originals, but strong and even massive by the side of the thin iron shafts commonly used. There might then be some hope of the design, artistically speaking; and yet the obstruction would be perhaps less than on the present system. The Court of the Oxford University Museum shows what can be done with clustered iron shafts: and numerous ideas (of course needing to be adapted to the new material) are supplied by the analogous features in our early churches. How to

connect these few piers or clusters of shafts, is the next question. They might be joined by arches of stone or brick, though a mixed construction of this sort has several disadvantages. The different materials often fail to harmonize, and among good masonry, it is hard to keep cast iron from showing as a blot. Its coarseness of grain, and its dark-coloured or painted surface, contrast badly with the pure and delicate surface of white stone. Wood and iron agree rather better, though the combination is not all that could be wished. But there remains another alternative. It is to use iron throughout; in the nave arches and the roof, as well as in the columns; to return on a fresh basis, to that unity of material which is so important an element in the best mediæval work. This unity in their case is one of masonry-construction. There all is stone, from floor to vault: here all, excepting the outer walls, would be iron. The arches might be either of cast or wrought metal, characteristically treated; and on these would rest the iron ribs or trusses of the roof. This might be arranged in many different ways. But suppose, for example, that it had a central span from column to column, with transverse ones over each bay of the side aisles. The number of bays having been reduced from five or six to three, the number of transverse roofs and side gables would become equally moderate; and so one great objection to this arrangement might be removed. If, indeed, enamelled cast iron were to prove a really durable substance, iron architecture might be carried much further. If it could really be preserved from rust and dirt in this

way, it might even find some place for itself externally. Its capabilities would then resemble those of a much stronger kind of terra cotta, admitting of coloured decoration. There is, it may be hoped, no need to protest against making it, whether enamelled or not, into sham masonry. In its natural properties it stands midway between stone and wrought metal. It is tougher than the one, and more brittle than the other; and, moreover, it is cast, not chiselled or hammered. Hence, to make the best of it, there needs an almost entirely fresh kind of detail. Mouldings, for instance, instead of being sunk beneath the surface, as if worked from a block, may just as properly rise above it. Leaf ornament, the simpler the better, may stand out edgeways with a bold projection impossible in stone. The knobs and bosses of masonry carving would be clumsy in so strong a substance, and would be in danger, too, of producing flaws by unequal contraction in cooling. In arches, a couple of flanges with an intermediate web would be better than a series of apparently thick voussoirs; and this web might be perforated in patterns without loss of strength. Such patterns are effectively used in the courts at the South Kensington Museum, where most of the iron construction, though not Gothic, deserves praise for its truth and naturalness of treatment.

The type of plan last suggested—that with a few substantial iron columns, instead of a great many little ones, admits of many varieties. One modification of it is suggested by an arrangement found in certain early churches —such as San Miniato at Florence, and San Zenone at

Verona. This is a combination of large piers with small ones. Each nave arcade, where the building is long enough to require it, is divided into three lengths by columns of considerable size, and each of these three lengths is subdivided into bays by one or two smaller shafts. The primary piers, on this system, would strengthen the construction, and give it, both really and apparently, something of a permanent and monumental character. The secondary ones, whose slenderness would be less objectionable in this subordinate position, would be an additional support, and would help to give scale and apparent size to the design. Such a system would evidently be needless, except in works of some magnitude; but there it might at times be useful. The application of iron to other plans—perhaps in the form of ribs for roofing, where no columns are employed—will naturally suggest itself in special cases. And though this material, as was avowed at starting, is not one of the most beautiful or durable at an architect's command, it might be turned to better account than it usually is at present. It offers a little cultivated field for design, and one which would repay labour if it were wisely directed. Where there is an opportunity of building with stone, iron has certainly no claim to be adopted; but where expenditure is limited, and it must be used for the sake of economy, it is at least worth trying to make the best of it.

Returning, however, to the general subject, it remains to ask which are the most promising directions for future effort. How are we to obtain this church for a congrega-

tion—this combination of noble architecture with perfect fitness for its use? By always insisting that there *shall* be such a combination, and by refusing to take one of its elements without the other. A design is put forward, perhaps, excellent in style and admirable in proportion. The next question is, "How far does it fulfil its practical purpose?" Do the nave piers block out the congregation, and the deep transepts make the minister's voice inaudible? If so, its artistic merit has been gained by shirking half the difficulties of the case. The problem was to produce a grand and beautiful church, in which every one could see and hear the service. The designer who, to make his church beautiful, is obliged to make it in great part useless, is plainly unequal to his task. And not less so is he who evades the other condition. His building, it may be, is comfortable and acoustically good: the seats well placed, and the means of egress ample. Merits of this sort deserve to have their weight, and ought to be held indispensable everywhere. But there is no necessity, and no excuse, for sacrificing everything else to obtain them. We want both art *and* convenience. The very object and essence of architectural design lies in reconciling the two—in fulfilling practical demands in a graceful and dignified way. The ordinary stone column church, with its nave and aisles, does not fulfil them, except very imperfectly. Its columns often obscure a fourth of the whole area. The common iron column church fulfils them, but in a painfully inartistic manner. It is the mediæval type starved into obedience—its life and vigour gone. Neither this nor the previous one

are what we want: each of them is only half-way to perfection.

To reconcile art with convenience, a greater or less departure from the ordinary nave and aisles plan is plainly inevitable. If we are ever to have a real modern church, it must be by adopting a fresh church arrangement. In everything else our ancient buildings have much to teach us. In very many points, our present work may be the direct descendant of the past; but in planning, it must develop features of its own. And here the great need is general toleration for new ideas. "Originality," it has been said, "is the one thing which unoriginal minds cannot feel the use of;" and there is sometimes one difficulty greater even than that of improving modern church arrangement—the difficulty of getting improvements adopted when they are made. No other art is so completely in the power of the outside world as architecture. The painter and the poet can set forth their own ideas without consulting any man's opinion: the architect must meet his clients' views before he can do his work at all. Hence the first condition of any advance lies with the public. If they wish for beautiful and characteristic modern churches, they will soon obtain them; if they are content with tame copies of mediæval ones, architects may strive for improvement in vain.

But suppose this freedom of action to be granted,—suppose the architect at liberty to act on his own judgment and to strike out his own path, where is he to look for success? Where he is *not* to look for it,—in the imita-

tion of buildings materially different in purpose, — is sufficiently clear. It is only the man of no invention who is driven to mask new forms in the semblance of old ones, —to copy and disguise because he cannot originate. To the true artist these new forms would suggest new types of beauty. Far from seeking to conceal them, he would make them the salient points of his work,—the problems he most delighted to study. To him they would be precious opportunities for something fresh and striking: something perhaps which no ordinary church would admit of. His one desire would be for honesty—thoroughness—distinct avowal of all the facts of the case. And one fact needing avowal is this: that a church really fitted for the use of a congregation cannot carry the vertical principle of design very far. An exaggerated verticality—such as that of much late mediæval work—can only be reached by going in the very teeth of our present requirements. We want a wide nave; verticality demands a narrow one: we need few columns, far apart; it calls for many, crowded closely together: we ask for an interior as low as beauty of proportion will allow; it insists on one as lofty as means will possibly admit. We aim, in short, at breadth, space, and largeness of parts; and where these qualities exist, a very aspiring and vertical form of Gothic is impossible. Fortunately such a style is as undesirable as it is inappropriate. Our best modern churches, like many of the best ancient ones, have a marked horizontal character, and prove that such a type has at least as much beauty, and infinitely more con-

venience, than the opposite one. This point, indeed, might hardly be worth notice, if the idea did not still linger here and there that Gothic must, of necessity, be vertical, and if the attempt to make it so in spite of nature and facts were not still leading in some quarters to a lamentable waste of good opportunities. It is just this sort of adherence to precedent which is the strongest obstacle to the growth and development of art. The builders of five hundred years ago gave an aspiring and vertical character to much of their work; and seeing this, some people at once conclude that we are always bound to give the same character to ours. The mediæval church builders generally adopted the arrangement of nave and aisles, and because they did so, few persons have ever ventured to deviate from or even modify it since. It is forgotten that their churches and ours are built for very different uses, and that what was admirable in the one may be absurdly inappropriate in the other. It is forgotten that art is but another name for perfect common-sense, for the exact adjusting of means to ends, and the doing what we have to do in the best and most fitting way. Common sense, in modern architecture, has counted for far too little, and habit and precedent for far too much. In what are called practical matters, such a state of things could not long continue, for its results would be too serious to be neglected. The force of habit is reduced to a minimum in those mechanical arts which at the present day are the only ones thoroughly living and growing. No one manufactures an obsolete form of steam-engine

simply because it was that which Watt adopted, and no one would long go on manufacturing the present forms if better ones were invented. It is only in architecture and its accessories that people reverse the system which everywhere else leads to success, and tremble to improve on anything once fairly established. It is only here that, instead of changing their practice to suit the changing life of the world, they chide the world for its growth, and wait expecting that it will yet shrink back into the garments it has long cast off. With such treatment it is no wonder that art does not advance more rapidly.

Returning, in conclusion, to the general subject of church arrangement, a few types may be selected which seem specially fit for adaptation to modern use. It is not intended to give designs, for a reason which every student of architecture understands. Nothing is more useless than to prepare drawings for a building as to which there are no definite conditions of any sort; and of all the books of architectural schemes which ever have been published, hardly one could be selected as having any real value. The best points in a building—those which give it life, interest, and character—generally spring from the particular circumstances of each case. They mark difficulties conquered: difficulties of site—of arrangement—of accommodation—of materials—of cost. To fight without difficulties is to conquer without glory; and a design which needed no special study to produce will have no special merit to display. But some ideas may be indicated to

serve as starting-points for further invention. Doubtless, they are far enough from being the only ones that could be devised. Perhaps they are not even the best; but, at any rate, they show that, if the usual aisled plan is repeated *ad infinitum*, it is not because no sufficient alternative can be found. That they *do* require adaptation has been repeatedly insisted on. They furnish, not copies exactly fit to be imitated, but principles which we may work out in a great variety of ways. Of these principles or systems of arrangement, we may select first that with a wide nave and narrow side aisles (PLATE VIII.) This has been often used in recent work, and there remains no doubt of its practicability. It retains much of the artistic effect of the ordinary aisled church, and yet avoids all or nearly all its inconvenience. It may, of course, be easily applied to other forms of plan than the simple oblong, and will readily combine with some of the types which remain to be mentioned. As a second system, that with few columns (PLATES III. and V.) deserves notice. It calls, indeed, for a substantial kind of construction. It demands transverse arches at least, and in works of the highest class a domed or vaulted roof. In ordinary cases the latter might be replaced by well-studied ceilings of wood, or possibly of iron with a filling-in of tiles or concrete. In most cases such a ceiling is acoustically better than an open roof. It harmonizes better, too, with a broad and massive style of architecture, and opens a field for high-class decoration, which, in one of our cathedrals and in several of our smaller churches, has

lately been cultivated with the best results. The few-column type of plan (PLATE III., &c.) does not appear to have been much used at present in modern buildings, except the smallest. One important example of it, however, is now being erected at Great Yarmouth by Mr. Seddon. This church, which is to seat from 1,000 to 1,200 persons, is in the shape of a Greek cross. It contains only four columns, which are connected with the side walls and with each other by arches of great span, and will have curved wooden ceilings with moulded ribs. It is evident that, in a plan of this kind, as in some of the Constantinople mosques which might suggest it, the few great piers may be so placed as to obscure not an area filled with seats, but merely the vacant space leading to a doorway. It is not, however, the actual planning, any more than the style of these last buildings, which it would be so desirable to appropriate. It is their system of wide spans and vast unbroken areas—the way in which they combine an architecture of the most durable and monumental kind with the utmost possibility of convenient arrangement. The difficulties of adapting them are evident enough; but it is a question whether, on a large scale, these advantages would not outweigh them.

A third idea worth following out in a simple class of works is that supplied by the French domical buildings such as Cahors (PLATE XII.) There is so little elaboration of detail about them, that they might probably be executed in permanent construction at a cost no greater than of many weak but showy modern churches. Their

leading forms are extremely beautiful, and would admit, though not require, almost any amount of surface decoration. They are already very free from obstruction to sight and hearing, and the substitution of detached columns for their few internal projecting piers would set them above any reasonable objection on this ground. Lastly, a most suggestive kind of arrangement is that of the cruciform plan with an enlarged central space; whether square, circular, or polygonal (PLATES XV. and XVI.) This contains nothing to interfere with the view; it seats the mass of the congregation around the chancel; it admits of very striking architectural effect, and could probably be brought nearer than most others to the ideal of a nineteenth century church. A clever design of this class, by Messrs. Lanyon and Lynn (given in PLATE XV.), was selected in a competition some years ago for a church at Edinburgh.

Here, then, are at least four systems on which churches might be built, uniting good architecture with perfect convenience and reasonable economy. And there is no cause why, in many cases, they should not be combined with each other, or modified by fresh ideas. An endless amount of variety is attainable in this way alone. But it can hardly be supposed that the possibilities of architectural invention have yet been nearly exhausted. The systems of planning,—valuable as they are,—which may be traced in such ancient buildings as have been brought together here, cannot surely be all on which it is possible to build a good and convenient church. The designing of churches for congregations is an art which the Middle

Age builders did not pursue very far; and more probably remains to be done towards it in the future than has been effected in the past. Still, they have left us many more suggestions than we have ever made use of. It is not because there is no choice in the matter, that so many of our churches are still built on that one especial type which suits us least,—the ordinary nave and aisles plan. For a Mediæval ritual, indeed, this plan may be the best. The service and the architecture were made for each other, and should, perhaps, hardly be separated. The beautiful churches raised of late years on the conventional type may be suitable enough for this purpose. Not a few of them are worthy of high admiration. They exhibit greater power, probably, on the part of their authors than do many old ones: for the modern architect has to supply every detail in his work, and not merely the general design, like his mediæval predecessor. But whatever may be their artistic merits, their type is not that for a Protestant church. The hundreds of cases in which it has been so applied only show its unfitness. Where they are architectural they are inconvenient, and where they are convenient they are weak and inartistic. They oscillate between thick columns with awkward arrangement, and thin columns with slight construction. Either a large number of persons are shut out from the service, or the design is starved and attenuated in order to admit them. The best examples are only a compromise, where the nave piers are too small in one sense and too large in the other. And this is inevitable on the system. It opposes instead

of promoting the object for which it is employed; and it is only brought into subjection at all by taking away its natural character and expression. The problem is, How to build a church, dignified, artistic, and permanent, in which the congregation can see and hear the service. There is a plan handed down to us by tradition in which a large proportion of the people cannot do so; there are other plans, quite as beautiful, and perhaps even less costly, in which they all can. If the first one ever fulfils the practical requirement it will be by sacrificing its very essence—its nave piers; the more they are reduced the less inconvenient it becomes—and the less architectural. The other plans will do it at once; the most they need is the working out and perfecting of their characteristic principles. The choice lies between destroying the artistic capabilities of the former, and developing those of the latter.

The minor details of planning, of ventilation, and of egress, and the questions of style, cost, and building materials, have been purposely left out of sight in the preceding pages. Their importance is universally recognized, and they have already received a share of attention far greater in proportion than has been given to the subject of general arrangement. And the same remark applies with still more force to every point of design which considerations of ritual can influence. The perpetual discussion of these latter questions which has gone on for many years past leaves little necessity for touching on them here. Everything connected with the chancel of a church has been studied and criticised with unremitting diligence.

The nave is the only part comparatively neglected, and it is the construction of the nave, therefore, to which attention has here been confined. It may be worth remarking, under the head of expense, that most of the plans suggested here would prove at least as economical as the one now in common use: and some of them, especially that with narrow aisles, have been found in recent works equally inexpensive and convenient. It might perhaps have appeared useful to give a list of recent churches, with their cost and size. This, however, would have been of little service without giving complete drawings and descriptions of each example. The outlay, after all, depends far less on the general arrangement than on the quality of materials, the height of the proportions, the mode of construction, and the amount and excellence of the decoration. From such causes as these the cost of churches has varied from 5*l.* or less per sitting, up to 50*l.* or more. The latter is, of course, a very exceptional price, and some of the most interesting of recent designs have not exceeded from 7*l.* to 12*l.* on the original contract. With a less expenditure than this, it is wise not to attempt too much. If sound construction and general beauty of form are secured at first, much in the way of decoration may be added afterwards. At any rate, the rule should be, not to seek for the largest possible quantity of ornament, no matter how tame and mediocre, but to resolve that however little it may be possible to afford, that little shall be thoroughly good of its kind. There are higher qualities to be found than mere prettiness: and a well-proportioned,

permanent building will hold its ground even without crockets and pinnacles and tracery. And of all varieties of style, those are the most useful which rely least on adjuncts of this sort. At a certain period of their art-education, indeed, most people seem as if they can hardly have ornament enough. A design can hardly be made too "sweet" for them, no matter how; and a broad, plain surface of masonry, or a piece of unadorned construction, offends their taste. But we seem at last to be fairly emerging from this "trash and toffee" stage of architecture, and to be acquiring a relish for more wholesome food. The earliest form of Gothic, either in its French or English variety, has nearly superseded all others in the best work of the day: and where the weak and showy Decorated of thirty years ago still lingers, it is usually in buildings of no great importance. The "pattern" district church, which once gloried in it, is happily becoming a thing of the past. That emblem of complacent mediocrity, it may be hoped, will not obtrude itself on the world much longer. Its ill-bonded walls of Kentish rag, its meagre window tracery, its "regulation" tower and spire, and its roof of thin timbers duly stopchamfered, still have their admirers. But their day is nearly over, and better building, as well as a better style, are showing themselves where they might least be looked for. Yet even with the best style as a starting-point, original thought is indispensable. There is something more wanted than the most skilful copyism. We have still, perhaps, too much antiquarianism put in place of design; if not too much learning, at any rate,

too little thinking. The temptation of an accomplished architect at present is to be out of sympathy with his times; to look back to the golden age of his art, and hope that it will yet reappear. But bygone periods do not come again. We cannot restore the old: we *may* transfuse what was good and permanent of it into the new. That age can never return: but art has other golden ages beyond, for those who press forward instead of going back.

THE END.

LONDON:
PRINTED BY SMITH, ELDER AND CO.,
OLD BAILEY, E.C.